

U-matic **SP**

VIDEO CASSETTE RECORDER

VO-9850



SONY
SERVICE MANUAL

SPECIFICATIONS

System

Recording system	Rotary 2-head helical scan Luminance: FM recording Color signal: converted subcarrier direct recording
Video signal system	EIA standards, NTSC color

Video

Inputs	VIDEO IN (BNC type) × 2 1.0 Vp-p ± 0.3 Vp-p, 75 ohms, unbalanced, sync negative
Outputs	DUB IN (7-pin) × 1 VIDEO OUT (BNC type) × 1 1.0 Vp-p ± 0.2 Vp-p, 75 ohms, unbalanced, sync negative TV (8-pin) × 1 DUB OUT (7-pin) × 1 MONITOR VIDEO (BNC type) × 1
Horizontal resolution	SP mode recording: 330 lines (both B/W and color)
S/N	SP mode Color: more than 46 dB Luminance (Y): more than 48 dB Conventional format more than 46 dB (color)
Subcarrier input	SC IN (BNC type) × 1 1 Vp-p (0.5 to 3 Vp-p), 75 ohms, unbalanced
Sync signal input	SYNC IN (BNC type) × 1 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	(BNC type) × 1 0.5 (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
Recording level control	Automatic and manual

Audio

Input	AUDIO LINE IN CH-1/L, CH-2/R (XLR 3-pin female) × 1 each +4 dB, 10 k ohms, balanced MICROPHONES CH-1/L, CH-2/R (phone jack) × 1 each -60 dB, 3 k ohms, unbalanced
Outputs	AUDIO LINE OUT CH-1/L, CH-2/R (XLR 3-pin male) × 1 each +4 dBm (at 600 ohm load), balanced MONITOR AUDIO (phono jack) × 1 -5 dB (at 47 k ohm load) TV (8 pin) × 1 HEADPHONES (stereo phone jack) For 8-ohm headphones Level adjustable (from -26 to -46 dB)
S/N	With Dolby NR off 52 dB (KSP, KSP-S tapes) 50 dB (KCA, KCS tapes) (both channel 1 and 2 at 3% distortion)
Frequency response	50 to 15,000 Hz ± 3 dB (both audio channel 1 and 2 with Dolby NR off)
Recording level control	Manual or limiter selectable

Time code

Input	TIME CODE IN (BNC type) × 1 0 dB ± 6 dB, 10 k ohms, unbalanced (0 dB = 1.55 Vp-p)
Output	TIME CODE OUT (BNC type) × 1 0 dB ± 3 dB, low impedance, unbalanced

Edit

Assemble	Video and audio channel 1 and audio channel 2 (simultaneously)
Insert	Video, audio channel 1 and/or audio channel 2 independently (selectable)
Preroll	Possible
Automatic editing	Possible with the RM-450 Automatic Editing Control (optional) Accuracy: ± 2 frames (This value does not apply if the F FWD or REW button is used during editing.)

Other functions

Memory backup of mark in operation	3 years from shipment
Pause	A still picture is obtained with long pause function
Search	Still, 1/30 to 8 times normal speed in both forward and reverse directions
Tracking control	Possible
Skew control	Possible
Sync system	Automatic switching between internal and external
Dropout compensator	Built-in

Tape transport

Tape speed	95.3 mm/sec.
Recording and playback time	Approx. 60 minutes (with KSP-60)
Fast forward and rewind time	Within 4 minutes (with KSP-60)
Wow and flutter	Less than 0.18% RMS
Tape compatibility	U-matic video cassette tapes
Usable tapes	KSP, KSP-S, KCA-BRS, KCS-BRS, KCA-XBR, KCS-XBR type

General

Power requirements	Nominal voltage: 120 V AC, 50/60 Hz
Operating voltage	90-132 V AC
Power consumption	90 W (with the BKU-704 or BKU-705, BKU-703 and RM-440)
Operating position	Horizontal (up to 20 degrees)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	426 × 238 × 513 mm (w/h/d) (16 7/8 × 9 3/8 × 20 1/4 inches) including projecting parts and controls
Weight	Approx. 21.4 kg (47 lb 3 oz)
Supplied accessories	AC power cord (1) Operating instructions (1)

Design and specifications are subject to change without notice.

Recommended video equipment and accessories

Editing Control Unit RM-450, RM-440 (when the BKU-703 installed)
Color Video Monitor Sony CVM and PVM series
Color Video Camera Sony DXC series
Time code generator/reader BKU-705
Time code reader BKU-704
33P editing interface BKU-703
Remote Control Unit RM-500, RM-580 (when the BKU-703 installed)
Cleaning Cassette KCS-1CL
Remote Control Cable RCC-5F (33-pin), RCC-5G (9-pin)
Dubbing Cable VDC-5 (5 m)
Monitor Connecting Cable VMC-3P (3 m),
VMC-5P (5 m), VMC-10P (10 m)
Multi Remote Control Unit RM-555 (when the BKU-703 installed)
Video and Audio Switcher BVS-500
VTR Selector RM-V5
Rack mount kit RMM-501

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SECTION 1

GENERAL DESCRIPTION

1-1. FEATURES

High-quality picture with a new recording/playback system

Recording and playback using the newly developed SP (Superior Performance) system and SP tapes specially designed for the SP system, provide clearer and sharper pictures than before.

Hi-Fi sound

Dolby NR C type noise reduction system permits high sound quality with reduced noise. The signal-to-noise ratio of 70 dB can be obtained (KSP or KSP-S tape) using the Dolby noise reduction system.
Cannon-3 pin connectors usually used for professional audio equipment are employed for the audio inputs and outputs.

Search operation

A search dial with the shuttle and jog functions is furnished. Playback pictures can be viewed at various speeds from $1/30$ times to 8 times normal speed as well as in a still mode in shuttle mode. In jog mode, playback pictures from still to ± 1 time normal speed can be viewed.
As the playback can be performed in both forward and reverse directions, any desired scene can be easily found.

LED time counter

The time counter reads out the CTL signals recorded on a tape and the LEDs indicate the tape running time in hours, minutes, seconds and frames. These are useful to check the recording time of a material and the remaining time of a tape.
When the BKU-705 time code generator/reader (optional) or the BKU-704 time code reader (optional) is installed in the VO-9850, the time code recorded on the tape is read and displayed.

Connection of a time base corrector

The best possible playback picture will be obtained by connecting a time base corrector.

Memory function using MARK IN button

A particular point on a tape can be memorized by pressing the MARK IN button and can be searched for easily afterward.

Electronic editing

All essential functions for electronic editing, rotary erase head, and capstan servo, framing servo, ϕ^2 servo loop circuit are incorporated in the VO-9850, which assures a high-quality editing with noiseless and stable picture at the edit point.
When an RM-450 automatic editing control unit is used, an automatic electronic editing of high-quality will be possible.

Remote control

The unit is equipped with a 9-pin remote control connector. When the equipment which has a 9-pin remote connector such as an RM-450 editing control unit, is connected here, the VO-9850 can be remotely controlled with this unit.
When a BKU-703 33-pin editing interface (optional) is installed in the VO-9850, it can be remotely controlled by the equipment with a 33-pin remote connector such as an RM-440.

Time code recording and playback

Sony prepares optional boards for time code operation such as a BKU-705 time code generator/reader, and BKU-704 time code reader. When the board is installed in the VO-9850, recording and playback of time code will be possible.

Dial menu operation

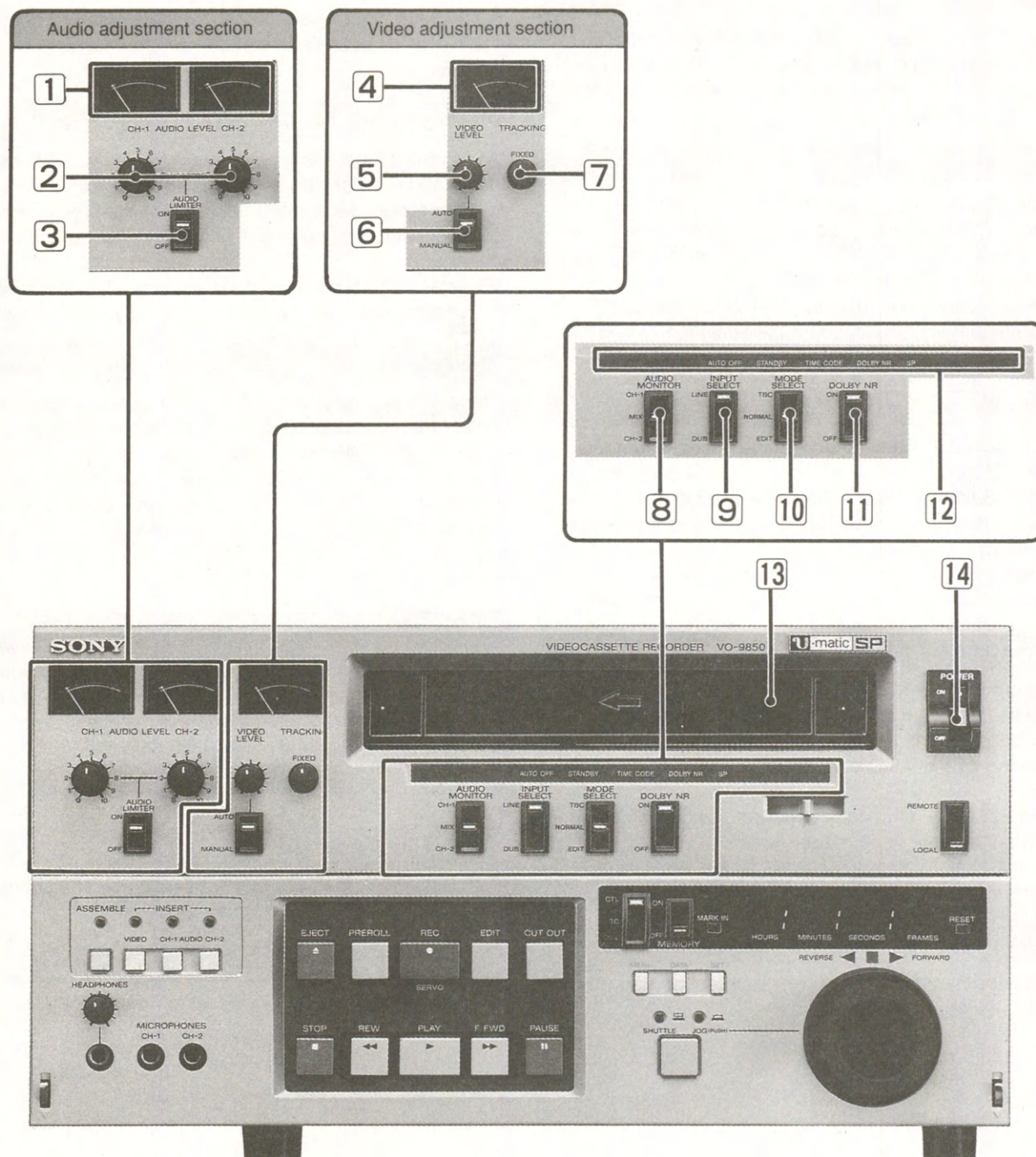
With the search dial, you can set time code, and change the setting value for editing.

Dubbing connectors

Connectors for editing or duplicating video signals are included.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

FRONT PANEL



Audio adjustment section

1 Audio level meters

Audio recording level is shown in recording and audio playback level in playback.

2 AUDIO LEVEL controls

3 AUDIO LIMITER switch

ON	The audio recording limiter circuit is activated to minimize sudden surges of input signals and perform recording with low sound distortion. Microphone recordings shall be performed with this setting.
OFF	The limiter circuit is deactivated, enabling a manual recording level adjustment.

Video adjustment section

4 VIDEO LEVEL/TRACKING meter

This meter indicates the video recording level during recording and whether or not tracking is correct during playback.

5 VIDEO LEVEL control

With the AUTO/MANUAL selector **6** set to MANUAL, turn this control to adjust video recording level so that the meter pointer swings within the blue zone.

6 AUTO/MANUAL selector

AUTO	The video recording level will be adjusted automatically.
MANUAL	Set to this position to adjust the video recording level manually.

7 TRACKING control

Normally set this control at the center FIXED position. Should noise, snow or streaks appear in a playback picture recorded on another machine, turn this control so that the VIDEO LEVEL/TRACKING meter **4** pointer deflects to the right as far as possible.

8 AUDIO MONITOR switch

Select the sound to be monitored through headphones or a speaker of a video monitor.

9 INPUT SELECT switch

This switch selects the signal to be recorded.

LINE	To record the signal from the VIDEO IN connector.
DUB	To record the signal from the DUB IN connector.

10 MODE SELECT switch

This switch selects the sync mode according to the connected equipment or to the operation mode.

TBC	For playback with a time base corrector
NORMAL	For normal recording or playback
EDIT	For editing

- If the switch is set to TBC without connecting a time base corrector, the picture rolls in the search mode.
- For editing, be sure to set the MODE SELECT switch to EDIT. When the switch is set to the position other than EDIT, the editing does not begin.

11 DOLBY NR (noise reduction) switch

When using an SP series tape for recording, set this switch to:

ON	For recording the sound with the Dolby NR system
OFF	For recording the sound without the Dolby NR system

- This switch has no effect in playback mode. The circuit is automatically switched by detecting whether the tape being played has been recorded with the Dolby NR system or not.
- The Dolby NR system is effective only for recording on SP series cassettes. This switch is not operative when recording on KCA and KCS cassettes.
- If the sound recorded with the Dolby NR system is played back on a conventional U-matic VTR (which is not equipped with the Dolby NR system), treble will be boosted.

12 Indicator section

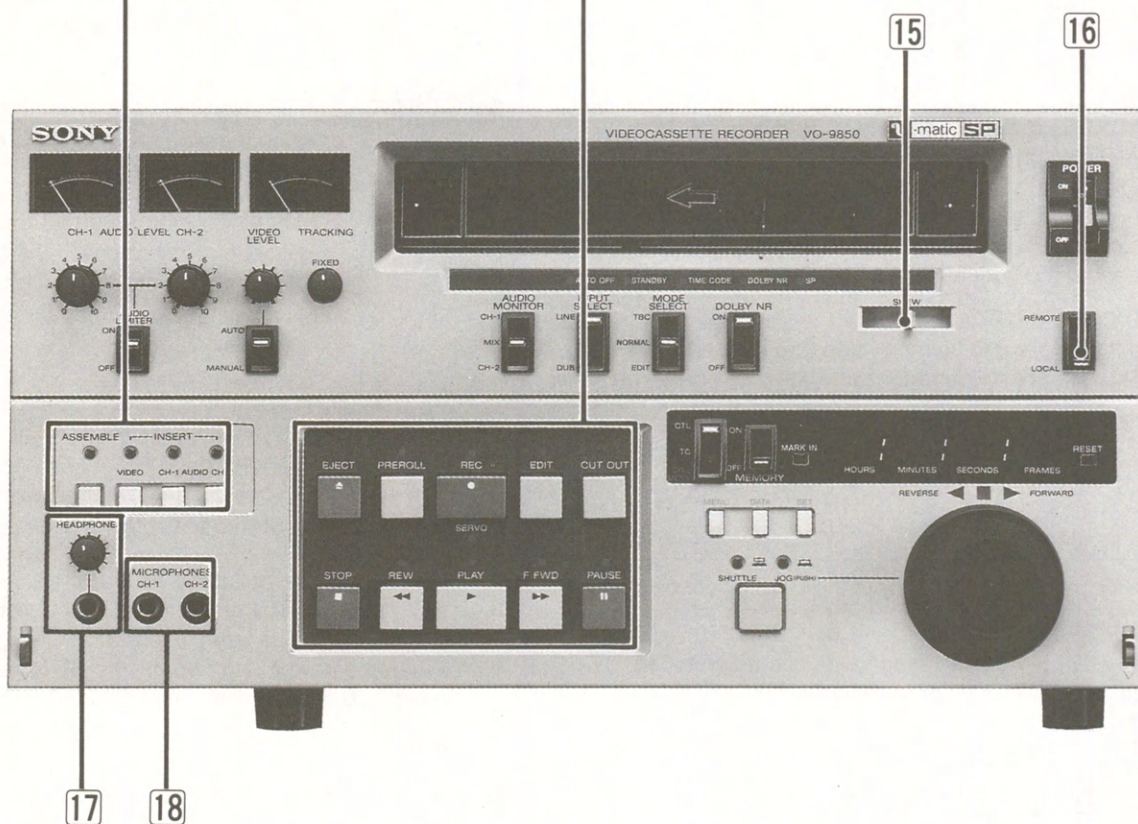
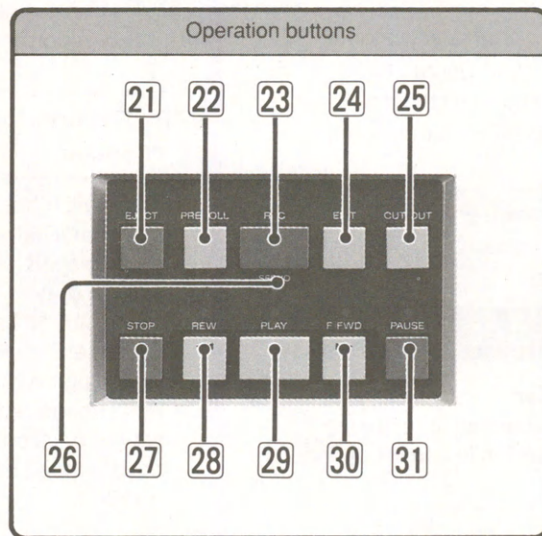
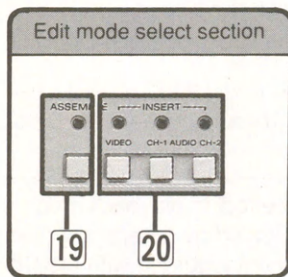
AUTO OFF	Lights at power-on when moisture is condensed inside the unit. While this indicator is lit, a cassette cannot be loaded.
STANDBY	Lights while a tape is being threaded from or unthreaded to the cassette inside the unit.
TIME CODE	Lights when time code is being recorded, or when the tape on which time codes are recorded is played back.
DOLBY NR*	In recording: Lights when an SP series cassette is inserted with the DOLBY NR switch set at ON. In playback: Lights when a tape recorded with the Dolby NR system is played back.
SP**	In recording: Lights when an SP series cassette is loaded. In playback: Lights when a tape recorded in SP mode is played back.

* When the power is turned on with the DOLBY NR switch set at ON, the DOLBY NR lamp lights up even if no cassette has been inserted.

** When the power is turned on, the SP lamp lights up even if no cassette has been inserted.

13 Cassette compartment

14 POWER switch



- 15 SKEW lever**
Normally set this lever at the center position.
When "hooking" distortion appears in the upper part of a playback picture, slide this lever to the right or left to obtain a normal picture.
• Do not move this lever while recording.

- 16 REMOTE/LOCAL selector**
Use this selector to control this unit with the other equipment connected to the REMOTE -1(9P) connector on the rear panel.
The functions are controlled as follows:

REMOTE	Set to this position when you want this unit to be controlled by the unit connected to the REMOTE-1 (9P) connector (9-pin). With this selector set to REMOTE, none of the operation buttons for tape travel, except for the STOP and EJECT buttons, will function.
LOCAL	Set to this position to operate this unit alone.

- 17 HEADPHONES connector (stereo phone jack), HEADPHONES level control**
- 18 MICROPHONES CH-1 and CH-2 connectors (phone jacks)**

Edit mode select section

- 19 ASSEMBLE button and indicator**
Press for assemble editing. The indicator will light.
- 20 INSERT buttons and indicators**
These buttons select the signal(s) to be inserted when editing. The indicator(s) corresponding to the button(s) pressed will light.

VIDEO	To insert the video signal
AUDIO CH-1	To insert the sound on audio channel 1
AUDIO CH-2	To insert the sound on audio channel 2

- Two or more buttons can be pressed simultaneously.
- To cancel the channel** selected by one of these buttons, press the button again. The indicator will go out.

To change the mode from assemble to insert or vice versa, first cancel the previously selected mode by pressing the button again then press the appropriate buttons.

Operation buttons

- 21 EJECT button**
Press to eject the video cassette.
- 22 PREROLL button and indicator**
Press this button in pause mode and the tape rewinds for 5 seconds and stops in pause mode.

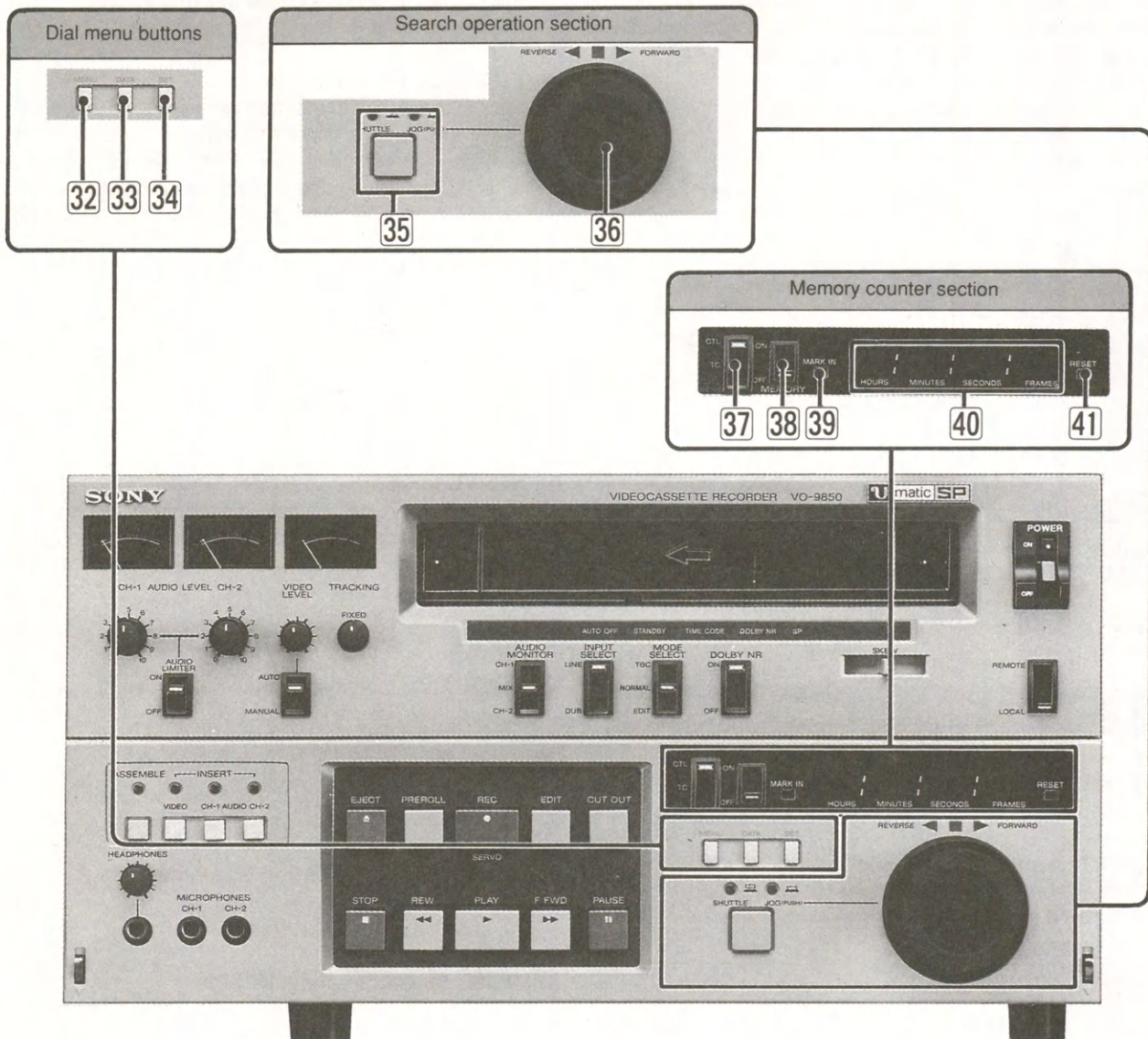
- 23 REC ● (record) button and indicator**
For recording, press this button simultaneously with the PLAY ► button.
- 24 EDIT button and indicator**
For editing, press this button simultaneously with the PLAY ► button. While this button is pressed, the E-to-E mode picture can be seen. (When INSERT mode is selected for editing, the signals selected with the INSERT buttons can be monitored in the E-to-E mode.)
- 25 CUT OUT button**
Press this button when assemble or insert editing is finished. The edit mode is canceled and the tape will continue to run in playback mode. When this button is pressed in record mode, the record mode is canceled, and when this button is pressed in pause mode after the preroll, the edit mode is canceled.

- 26 SERVO lamp**
With the PLAY ► button pressed, normally the drum and capstan servo-mechanisms will start working properly. This lamp lights when the servo-mechanisms are locked in a reference signal.

Note

The SERVO lamp blinks if the servo-mechanisms are not locked in during editing.

- 27 STOP ■ button**
Press to stop the operation of the unit. The E-to-E mode picture can be seen on the monitor screen.
- 28 REW ◀◀ (rewind) button and indicator**
Press to rewind the tape. The E-to-E mode picture can be seen on the monitor screen.
- 29 PLAY ► button and indicator**
Press to play the tape back. Simultaneously pressing this button with the REC button sets the unit in the record mode: simultaneously pressing it with the EDIT button sets the unit in the edit mode.
- 30 F FWD ▶▶ (fast forward) button and indicator**
Press to advance the tape rapidly. The E-to-E mode picture can be seen on the monitor screen.
- 31 PAUSE || button and indicator**
Press to stop the tape momentarily. To start the tape, press again. When this button is pressed during playback, a still picture will be obtained. If the PLAY ►, F FWD ▶▶, REW ◀◀ or search button is pressed during the pause mode, the pause mode will be released and the tape will run in the mode designated by the button pressed.



Dial menu buttons

The dial menu buttons **32**, **33** and **34** are used only when the CTL/TC/DIAL MENU selector **37** is set to DIAL MENU.

32 MENU button

While pressing this button, turn the search dial in jog mode to select the menu.

33 DATA button

While pressing this button, turn the search dial in jog mode to set the data.

34 SET button

Press this button to settle the data set by the DATA button.

Search operation section

35 Search button

Press to put the unit in the search mode, and the search operation with the search dial in jog or shuttle mode will be possible.

36 Search dial and SHUTTLE/JOG lamps

Functions as a search dial for quickly locating edit points or as a selector for the dial menu operation according to the setting of the CTL/TC/DIAL MENU selector **37**.

Setting	Function
CTL or TC	Search for a scene
DIAL MENU	Dial menu operation

The details of the function are as follows:

Search for edit points

Set the CTL/TC/DIAL MENU selector to CTL or TC, and press the search button [35]. The search dial can make the tape run in jog or shuttle mode. Push in to change from the shuttle mode to the jog mode and push it in again to change back. The corresponding lamp lights to show the current mode. Rotate the dial clockwise to run the tape forward (the ► FORWARD lamp lights), and counterclockwise to run the tape in reverse (the REVERSE ◀ lamp lights).

When the tape stops, the ■ lamp lights.

SHUTTLE:	Set the dial to one of 16 positions to run the tape at a speed from 1/30 to 8 times normal speed. A still picture is obtained at the center detent position.
JOG:	The dial turns freely. The tape runs at a speed from 0 to 1 times normal speed while the dial is rotated. When the dial is stopped, a still picture is obtained.

Dial menu operation

Set the CTL/TC/DIAL MENU selector to DIAL MENU. Rotate the dial while pressing the MENU button [32] or the DATA button [33] to set characters or numbers on the display.

Memory counter section

[37] CTL/TC/DIAL MENU selector

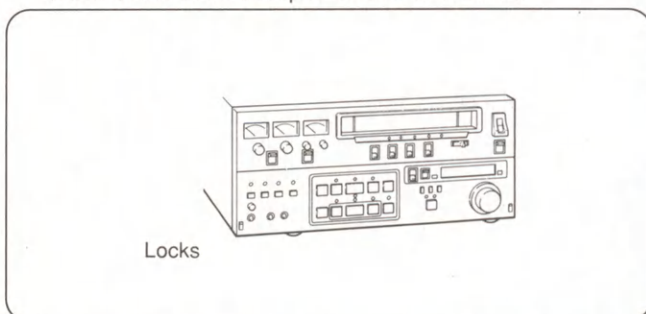
Selects what is displayed in the time counter display [40] as follows.

CTL	Displays time period of tape travel in hours, minutes, seconds and frames by counting CTL pulses.
TC	Displays time code
DIAL MENU	The unit goes into the dial menu operation mode and the dial menu will be displayed. In this mode, any other functions are deactivated.

Control panel positioning

The lower half of the control panel can be tilted upwards by 30°, 60° or 90° for convenience.

- 1 Push down the locks on the both sides simultaneously so that the lower half of the front panel comes to the front.



Notes

- You can put the VO-9850 in the dial menu operation mode with the REMOTE/LOCAL selector [16] set to LOCAL, only when a cassette is not inserted or when the unit is in the stop mode.
- The time code data is displayed only when the BKU-705 time code generator/reader or the BKU-704 time code reader is installed in the VO-9850.

[38] MEMORY switch

When this switch is set to ON, the tape will automatically stop the point where the MARK IN button was pressed in the rewind or search mode. The point where the tape stops may shift a little. If the MARK IN button has not been pressed, the tape will stop at the point where the time counter indicates "0:00:00:00" (when CTL is selected).

- During editing or when the REMOTE 1 (9P) connector is used, be sure to set this switch to OFF.

[39] MARK IN button

Press to memorize a particular point on the tape and the time indicator keeps indicating the memorized point while the button is pressed.

The memory function can be activated at any position of the MEMORY switch.

[40] Time counter display

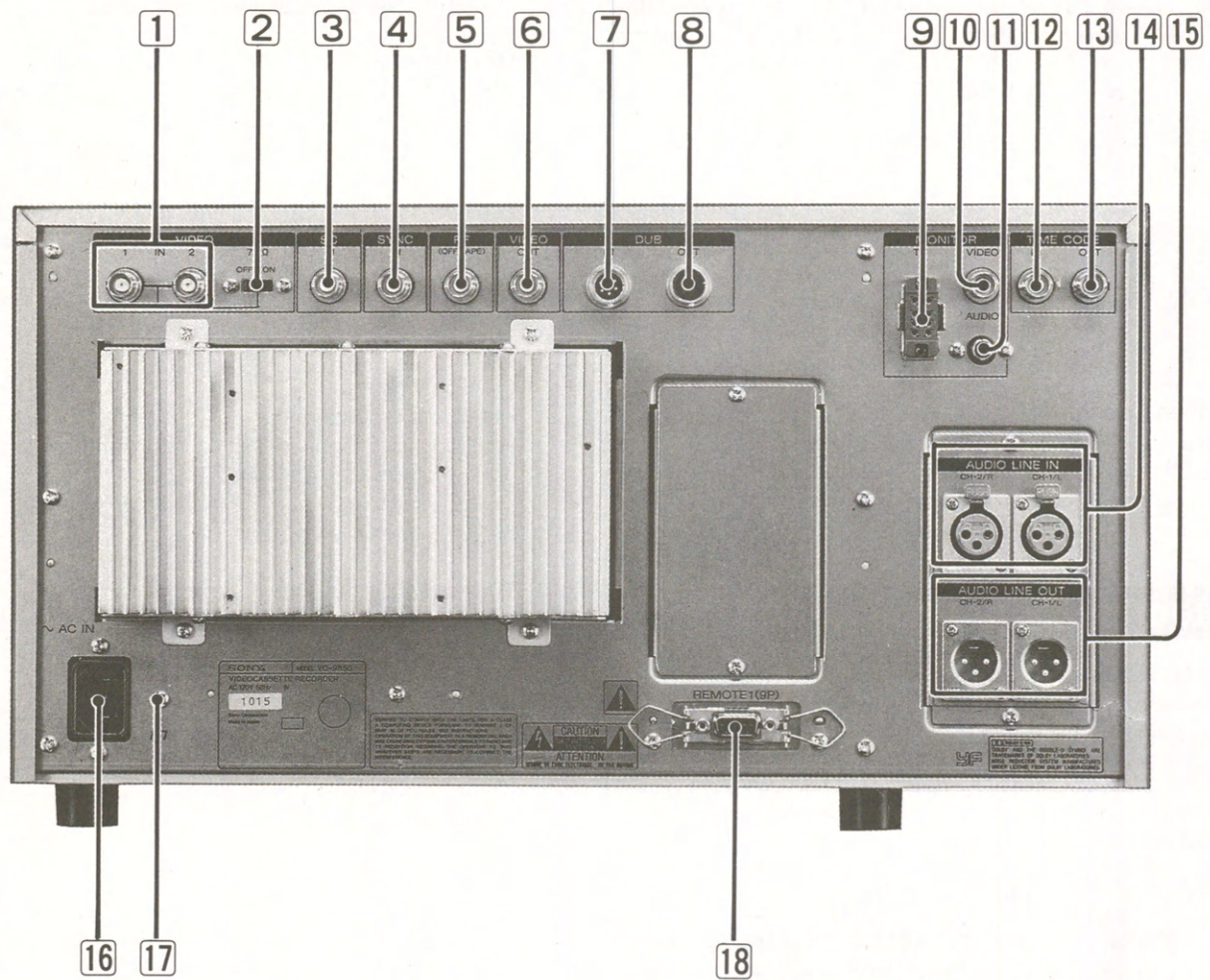
Displays the item selected by the CTL/TC/DIAL MENU selector [37].

[41] RESET button

When the CTL signal is used to display the time period of the tape travel on the time counter display [40], press to reset to 0:00:00:00. The point memorized by the MARK IN button will be canceled.

- 2 Tilt the panel up and lock it at the desired angle of 30°, 60° or 90°. Be sure to check that both sides are locked firmly.

REAR PANEL



1 VIDEO IN (video input) connectors (BNC type)

Supply a composite video signal to one of these connectors.

For a bridging connection, use either one for input and the other for output. In this case, be sure to set the 75 ohm termination switch **2** to OFF and terminate the trunk line end instead.

2 75 ohm termination switch

Use to terminate the video signal supplied to the VIDEO IN connector **1**.

ON	When one VIDEO IN connector is used for the incoming signal and the other is left open.
OFF	For a bridging connection (One VIDEO IN connector is used for the incoming signal but the other is used to send the incoming signal to another VTR.)

3 SC IN (sub-carrier) connector (BNC type)

Accepts a sub-carrier signal from a time base corrector.

4 SYNC IN (sync signal input) connector (BNC type)

Accepts an external sync signal to operate the unit in synchronization with an external device (time base corrector, etc.).

5 RF (OFF TAPE) output connector (BNC type)

Supplies an FM signal to a time base corrector in playback.

6 VIDEO OUT connector (BNC type)

7 DUB IN (dubbing input) connector (7-pin)

Use to input the video signal to be dubbed from a U-matic VTR. Connect to the dub out connector of the U-matic VTR using the 7-pin dubbing cable (optional).

8 DUB OUT (dubbing output) connector (7-pin)

Use to supply the video signal to be dubbed to a U-matic VTR. Connect to the dub in connector of the U-matic VTR using the 7-pin dubbing cable (optional).

9 TV (monitor) connector (8-pin connector)

Accepts a video monitor having an 8-pin VTR connector. Both the MONITOR VIDEO, and MONITOR AUDIO connections can be replaced with a single cable connection here. In playback, the channel selected by the AUDIO MONITOR switch will be heard through the speaker on the video monitor.

- The data of the dial menu is superimposed on the video signal and output.

10 MONITOR VIDEO connector (BNC type)

This outputs the video signal for monitoring. Connect to the video input connector of a color monitor. Information superimposed on a picture in the dial menu operation mode will also be output.

11 MONITOR AUDIO output connector (phono jack)

Supplies an audio signal selected by the AUDIO MONITOR switch on the front panel.

12 TIME CODE IN connector (BNC type)

Accepts the time code supplied from an external time code generator or another VTR.

When the BKU-705 time code generator/reader (optional) is installed in the VO-9850, it can be locked with the time code supplied to this connector.

When the BKU-705 is not installed, the time code supplied to this connector can be recorded.

13 TIME CODE OUT connector (BNC type)

During playback, the time code recorded on the tape is played back and output from here. When the time code is supplied to the TIME CODE IN connector, the supplied time code is output during recording.

When the BKU-705 time code generator/reader is installed, the time code generated by the BKU-705 is output during recording.

14 AUDIO LINE IN CH-1/L and CH-2/R connectors (XLR 3-pin, female)

15 AUDIO LINE OUT CH-1/L and CH-2/R connectors (XLR 3-pin, male)

16 AC IN (power inlet)

Plug in the supplied AC power cord to supply power to the VO-9850.

17 Ground terminal

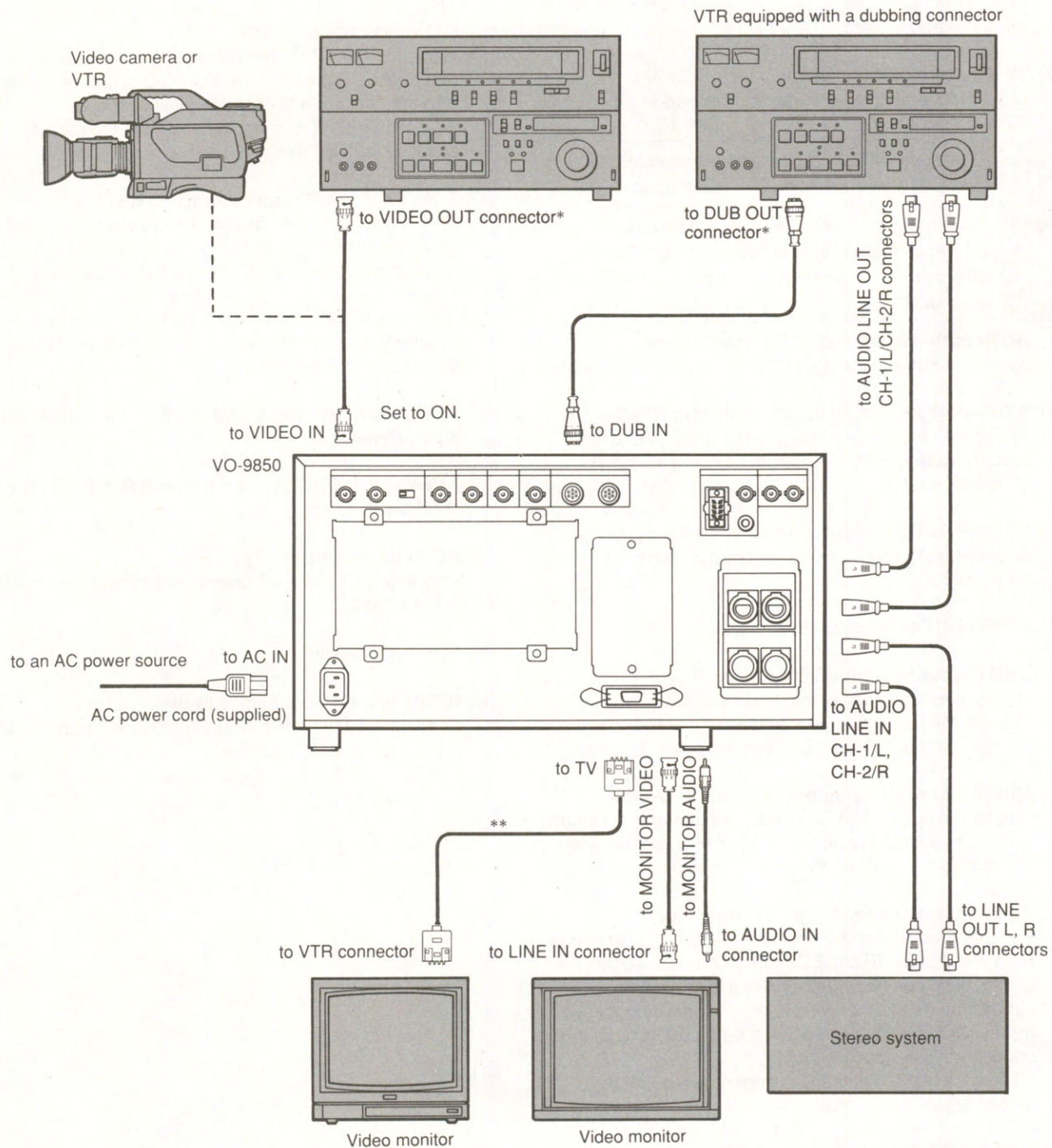
18 REMOTE 1 (9P) connector (9-pin)

Connect a Sony editing control unit such as an RM-450 to perform an edit recording.

Use the 9-pin remote control cable (optional) to make the connection.

1-3. CONNECTIONS

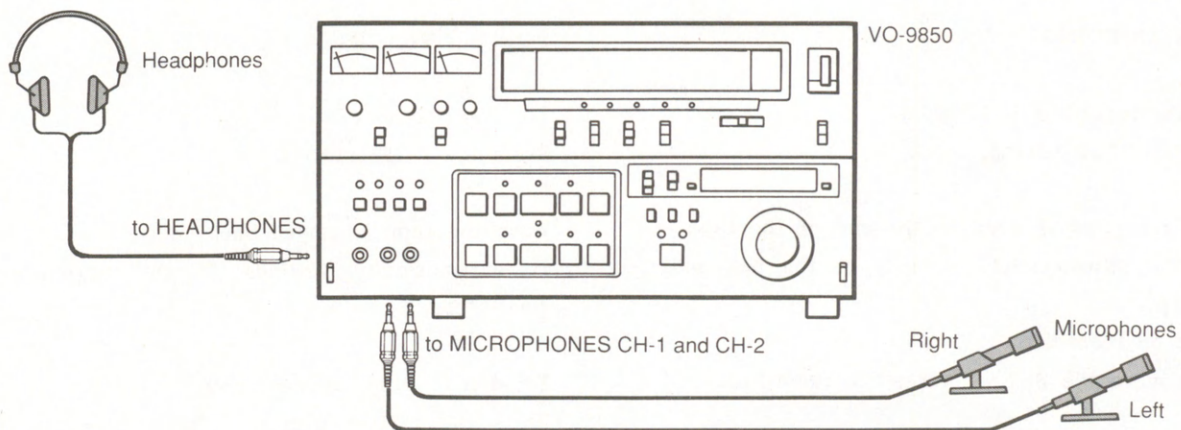
1-3-1. Connections for Recording



* When a VTR which is not equipped with the DUB connector, connect it to the VIDEO IN connector on the VO-9850 using a cable with BNC connectors.

** Use a VMC-3P, VMC-5P or VMC-10P monitor connecting cable.

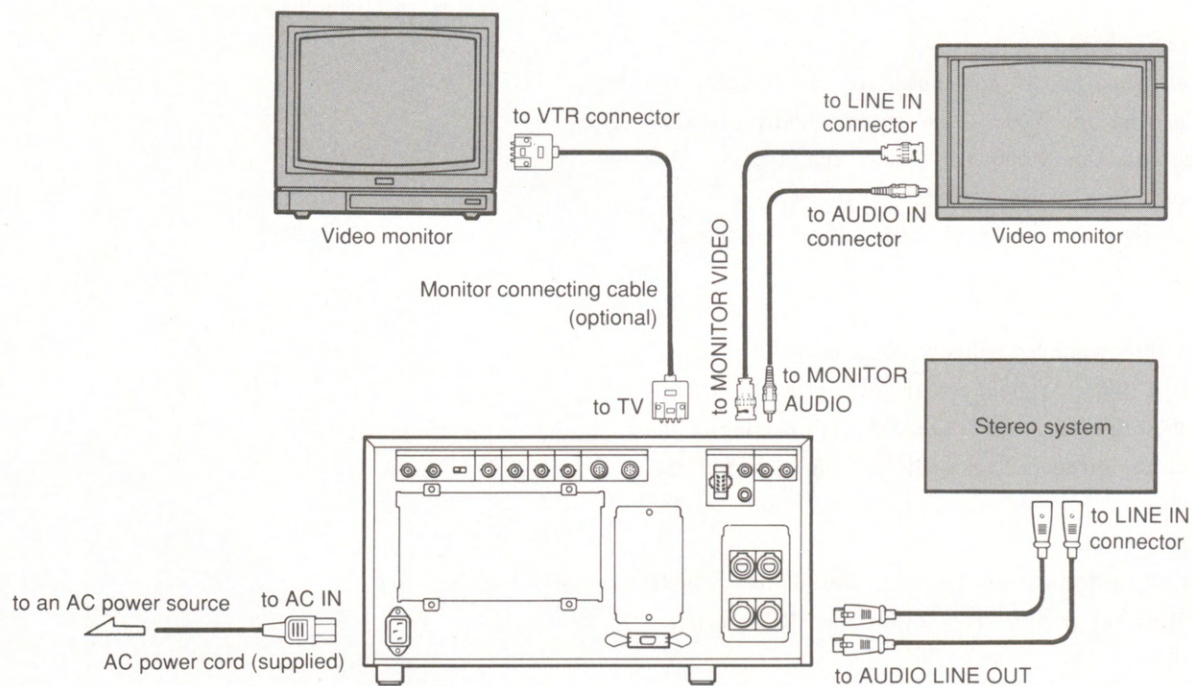
1-3-2. Connections for Headphones and Microphones



Note

When the microphones are connected, the signals connected to the AUDIO LINE IN connectors on the rear panel are automatically cut off, and cannot be recorded.

1-3-3. Connections for Playback



1-4. OPERATION

FOR RECORDING

When the recording is finished

Press the STOP button.

If the recording is done to the end of the tape

The tape automatically rewinds to the beginning, and stops.

. Note on recording

Do not move the SKEW lever while recording.

Regarding a cassette

Be sure to check that the red button is in place on the cassette before inserting it in the VTR. If the cassette without the button is inserted, the recording mode cannot be obtained.

To stop the tape momentarily

Press the PAUSE button.

To resume recording, press the PAUSE button again.

Long pause mode

If the pause mode continues for 8 minutes, the tape around the head drum automatically slackens to protect the video head and the tape. This is called "long pause mode".

To release the long pause mode, press the PAUSE button.

E-to-E (Electronics-to-Electronics) mode

An input video signal which has passed through the amplifier in the recorder is displayed on the monitor screen. This is the E-to-E mode picture, permitting the input signal to be checked on the monitor screen.

The unit automatically enters the E-to-E mode when it is set in the stop, F FWD or REW mode.

FOR PLAYBACK

To stop playback

Press the STOP button.

When the tape is played back to the end

It automatically rewinds to the beginning and then stops.

To stop the tape momentarily

Press the PAUSE button. The tape stops and a still picture appears on the monitor screen. The still picture is a clear one having no guard-band noise.

To resume playback, press the PAUSE button again or press the PLAY button.

. If the pause mode continues for 8 minutes, the recorder automatically enters the long pause mode, and the still picture will disappear.

Note on the MODE SELECT switch

If the MODE SELECT switch is set to TBC without connecting a time base corrector, the playback picture rolls.

SECTION 2

SERVICE INFORMATION

2-1. REMOVAL OF CABINET

. Top Panel

Remove the two fixing screws shown in the figure. Then remove the Top Panel from the unit in the direction of the arrow.

. Right Side Panel

Remove the four fixing screws. Then remove the Right Side Panel from the unit.

. Cassette-up Compartment

- (1) Remove the Top Panel.
- (2) Remove the two fixing screws and then remove the Cassette-up Compartment Stay.
- (3) Disconnect CN1 on the CC-36 board.
- (4) Lift the Cassette-up Compartment Block slowly.
- (5) When installing the Cassette-up Compartment, insert the projections of the Cassette-up Compartment Block into the holes of the chassis.
- (6) Connect CN1 on the CC-36 board.
- (7) Insert the projections of the Cassette-up Compartment Block into the holes of the Cassette-up Compartment Stay (as shown in the figure) and then fix the screws.

Cassette-up
Compartment Stay

projection

. Left Side Panel

Remove the four fixing screws. Then remove the Left Side Panel from the unit.

. Front Panel

- (1) Remove the Top Panel, the Left and Right Side Panels, and the Cassette-up Compartment Block.
- (2) Remove the four fixing screws (two screws on the top, and a screw on each side).
- (3) Remove the two fixing screws of the lower portion of the Front Panel from the inside of the unit. Then remove the Front Panel from the unit.

. Bottom Plate

Remove the four fixing screws. Then remove the Bottom Plate from the unit.

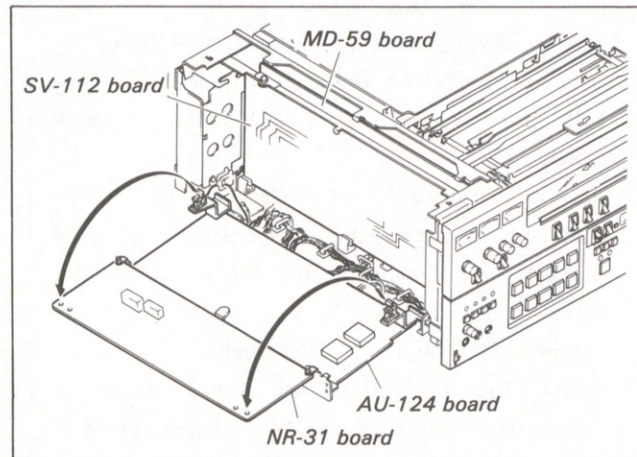
. Key Panel

- (1) Remove the dial cover, and remove a knob from the unit.
- (2) Push down the right and left knobs on the front of the Key Panel and open the Panel at a 90 degree angle.
- (3) Remove the four fixing screws. Then remove the Key Panel from the unit.

2-2. HOW TO SERVICE THE PRINTED CIRCUIT BOARD

2-2-1. AU-124, NR-31, SV-112 and MD-59 Boards

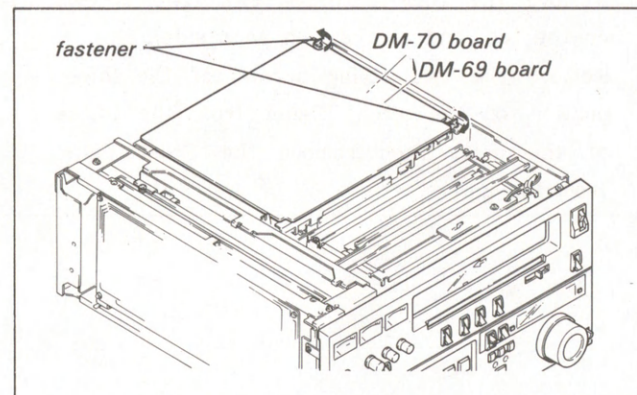
Open the AU-124 and NR-31 boards to repair as shown in the figure.



2-2-2. DM-69 and DM-70 Boards

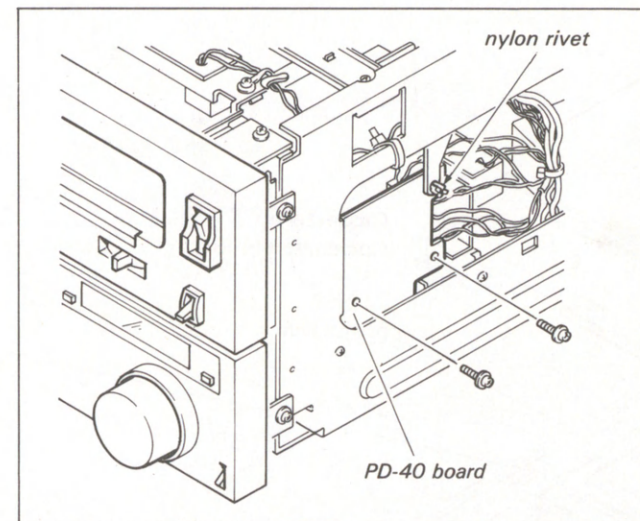
Turning the fastener to the direction of the arrow, the DM-69 board can be opened. Then, the component side of the DM-69 board can be repaired.

After opening the DM-69 board, the DM-70 board can be opened.



2-2-3. PD-40 Board

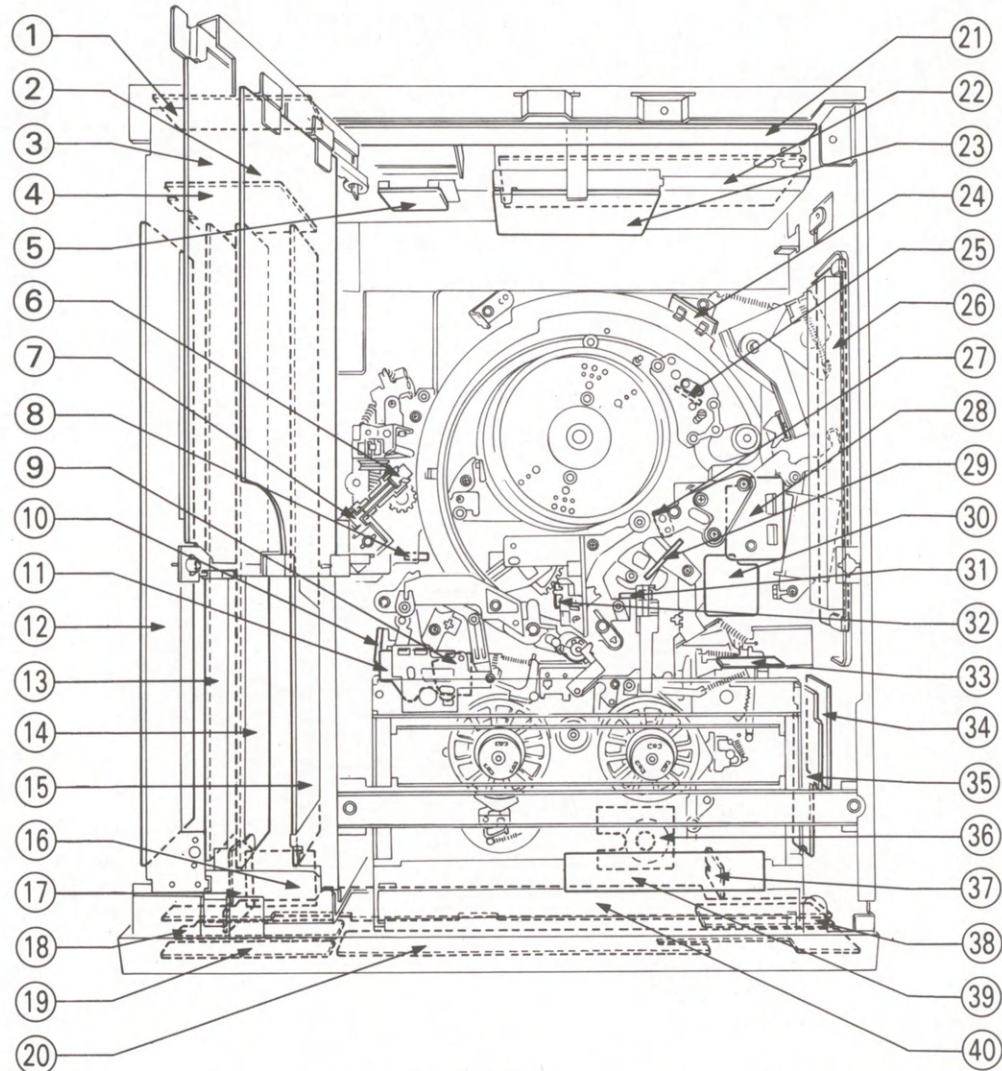
Remove the nylon rivet from the inside of the unit and remove two screws, and then remove the PD-40 board.



2-3. MAIN PARTS LOCATION

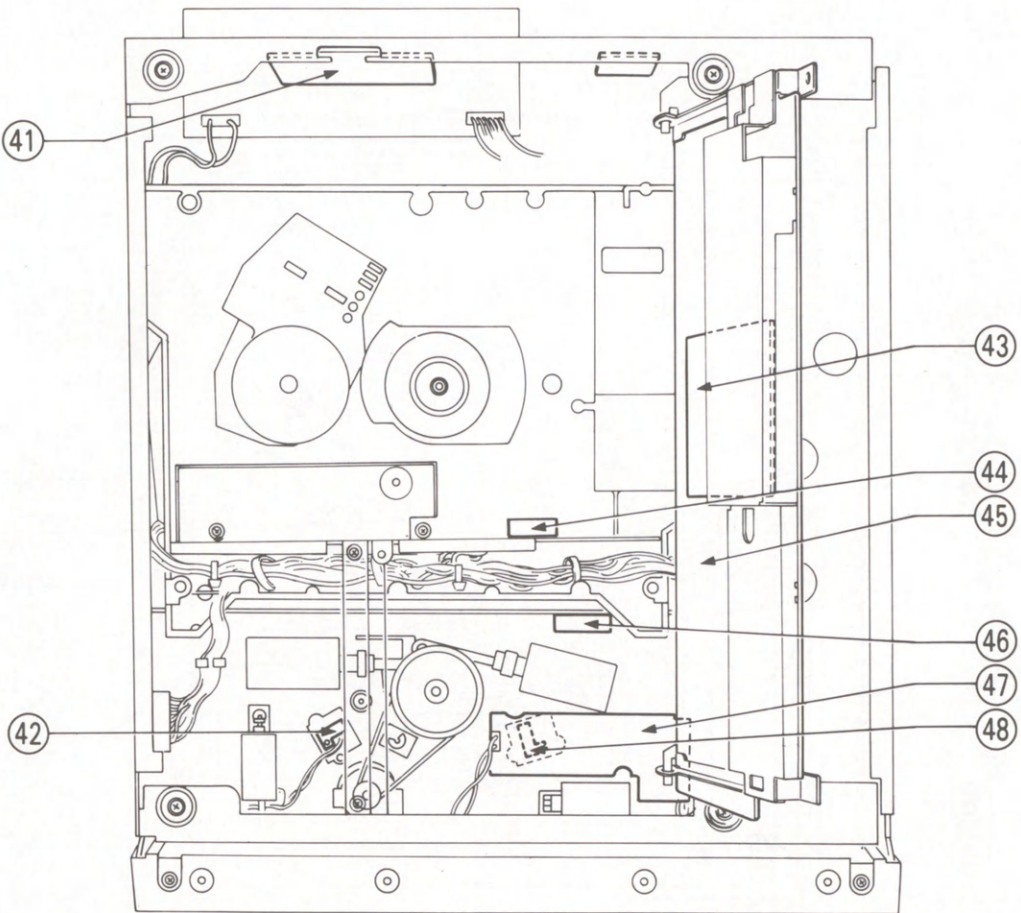
2-3-1. Location of the Printed Circuit Board

[TOP VIEW]



- | | | |
|-----------------|--------------------------------|------------------|
| 1 CP-136 Board | 14 SV-112 Board | 27 HN-84 Board |
| 2 DM-70 Board | 15 MD-59 Board | 28 DUS-147 Board |
| 3 DM-69 Board | 16 MC-28 Board | 29 EC-32 Board |
| 4 AA-16 Board | 17 HP-42 Board | 30 HN-130 Board |
| 5 RM-66 Board | 18 VR-80 Board | 31 PH-5 Board |
| 6 PH-5 Board | 19 MT-53 Board | 32 PH-5 Board |
| 7 PH-5 Board | 20 SW-315 Board | 33 CC-37 Board |
| 8 LM-13 Board | 21 DUS-271 Board | 34 PD-40 Board |
| 9 SE-46 Board | 22 Switching Regulator (UR-01) | 35 CC-36 Board |
| 10 PTC-34 Board | 23 DC-31D Board | 36 RM-39 Board |
| 11 PTC-30 Board | 24 PTC-33 Board | 37 PTC-32 Board |
| 12 AU-124 Board | 25 DUS-92 Board | 38 DP-62 Board |
| 13 NR-31 Board | 26 RP-40 Board | 39 LP-41 Board |
| | | 40 KY-159 Board |

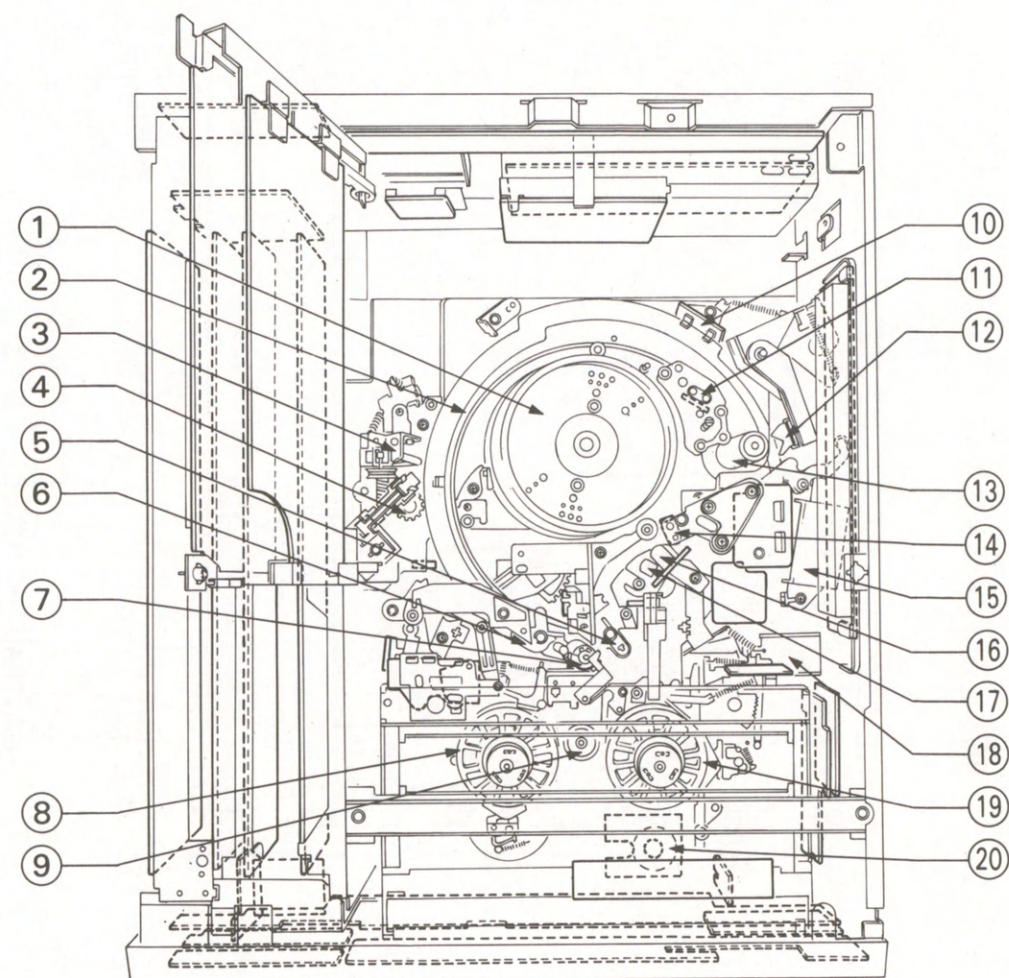
[BOTTOM VIEW]



- | |
|-----------------|
| 41 AC-94 Board |
| 42 PTC-35 Board |
| 43 BC-16 Board |
| 44 PT-9 Board |
| 45 SY-141 Board |
| 46 TG-22 Board |
| 47 PD-41 Board |
| 48 PTC-35 Board |

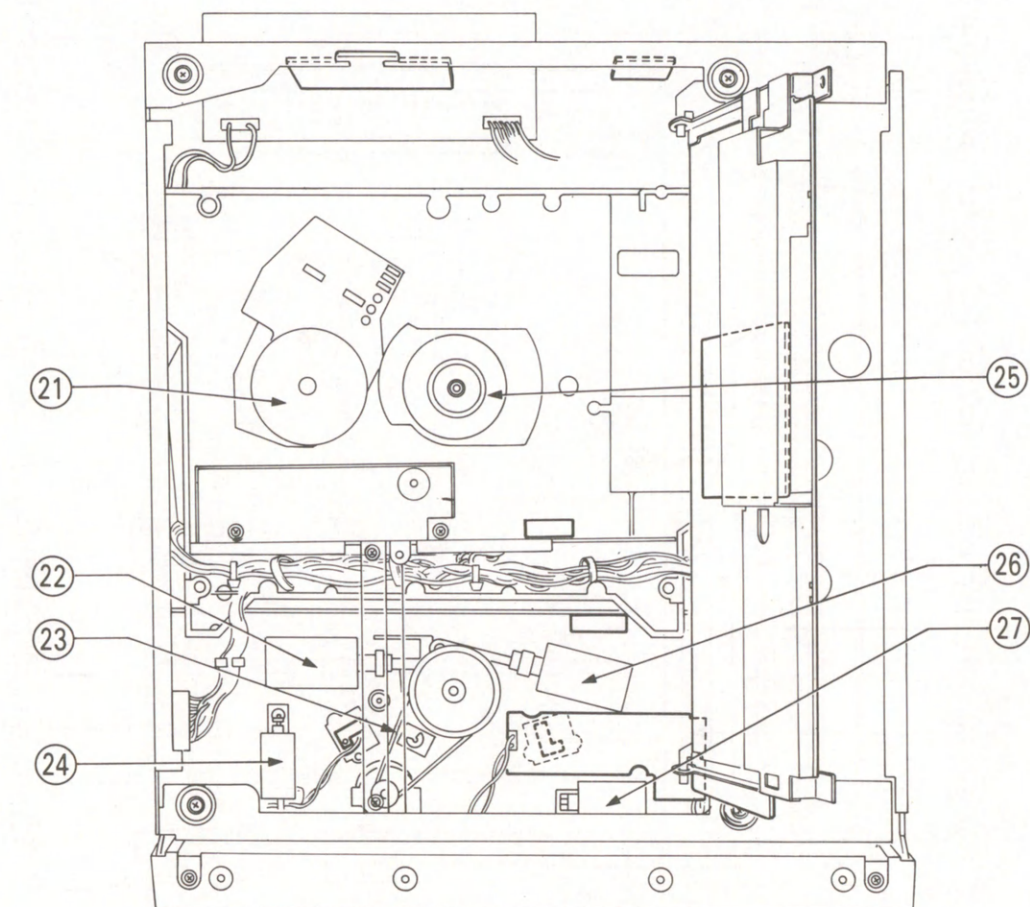
2-3-2. Location of the Mechanical Main Parts/ Components

[TOP VIEW]



- | | |
|----------------------|----------------------|
| 1 Head Drum | 11 Audio/CTL Head |
| 2 Threading Ring | 12 Pinch Lever |
| 3 T Correction Guide | 13 Capstan Shaft |
| 4 Gear Box | 14 Time Code Head |
| 5 S Drawer Arm | 15 Pinch Solenoid |
| 6 T Drawer Arm | 16 FR CTL Head |
| 7 Pinch Roller | 17 Full Erase Head |
| 8 Take-up Reel Table | 18 Search Solenoid |
| 9 Idler Pulley | 19 Supply Reel Table |
| 10 FR Detector | 20 Reel Motor |

[BOTTOM VIEW]



- | |
|---------------------------|
| 21 Capstan Motor |
| 22 Supply Idler Solenoid |
| 23 Belf for FF/REW Idler |
| 24 Supply Brake Solenoid |
| 25 Drum Motor |
| 26 Take-up Idler Solenoid |
| 27 Take-up Brake Solenoid |

2-4. PRINTED CIRCUIT BOARD

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-69	Y Demodulator, SP Detector, Character Mixer
	DM-70	C PB Processor
	DUS-271	Connector
	MD-59	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40	REC/PB Amplifier, Rotary Erase Driver
	VR-80	Level AUTO/MAN
AUDIO	AA-16	Connector
	AU-124	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31	Dolby NR, NR Pilot REC/Detector,
	SW-315	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112	Drum/Capstan Servo
	SY-141	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT. IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31	REC/PB Amplifier
POWER	AC-94	Line Filter
	DC-31D	DC Supply
	UR-01	Switching Regulator

SYSTEM	BOARD	CIRCUIT FUNCTION
SYSTEM CONTROL	KY-159	Function Key Board
	DP-62	Display
	BC-16	Video/Audio Timing Control
	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	LM-13	Threading Motor
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Detector
	PTC-30	SP/Miss REC Detector
	PTC-32	Search Dial
	PTC-33	Unthread-end Detector
	PTC-34	FR-STOP Detector
	PTC-35	S/T Reel Rotation Detector
	RM-66	Remote Connector
	SE-46	Tension Regulator Detector
OTHERS	SY-141	System Control
	TG-22	Tension Regulator LED
	CP-136	Framing Switch
	LP-41	Cassette Compartment Lamp
	MT-53	Meter Lamp
	RM-39	Reel Motor

2-5. CONNECTORS

When external cables are connected to the various connectors on the connector panel during maintenance, the hardware listed below (or equivalents) must be used.

Panel Indication	Connector
MONITOR TV	1-506-161-00 CONNECTOR, 8P, MALE
SC IN SYNC IN RF (OFF TAPE) VIDEO IN VIDEO OUT MONITOR VIDEO TIME CODE IN TIME CODE OUT	1-560-069-11 PLUG, BNC, MALE
MONITOR AUDIO	1-506-311-00 PLUG, PIN
AUDIO LINE IN CH-1, CH-2	1-508-084-00 CONNECTOR, XLR, 3P, FEMALE
AUDIO LINE OUT CH-1, CH-2	1-508-083-00 CONNECTOR, XLR, 3P, MALE
REMOTE 1 (9P)	1-560-651-00 PLUG, 9P, MALE and 1-561-749-00 JUNCTION, SHELL, 9P
DUB IN	1-561-055-00 PLUG, 7P, FEMALE
DUB OUT	1-508-948-00 PLUG, 7P, MALE

2-6. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

VIDEO IN 1, 2	: 1.0 ± 0.3 Vp-p, 75 ohms, unbalanced, sync negative
VIDEO OUT	: 1.0 ± 0.2 Vp-p, 75 ohms, unbalanced, sync negative
SC IN	: 1 Vp-p (0.5 to 3 Vp-p), 75 ohms, unbalanced
SYNC IN	: 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	: 0.5 Vp-p (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
AUDIO IN CH-1/L, CH-2/R	: +4 dB, 10 kohms, balanced
MICROPHONES CH-1/L, CH-2/R	: -60 dB, 3 kohms, unbalanced
AUDIO OUT CH-1/L, CH-2/R	: +4 dBm (at 600-ohm load), balanced
MONITOR AUDIO	: -5 dB (at 47-kohm load)
HEADPHONES	: -26 to -46 dB (adjustable)
TIME CODE IN	: 0 ± 6 dB, 10 kohms, unbalanced (0 dB = 1.55 Vp-p)
TIME CODE OUT	: 0 ± 3 dB, low impedance, unbalanced

2-7. SPARE PARTS

- (1) The  -marked components are critical to safety.
Replace only with the same components as specified.
- (2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape and outside view from the parts which are used in the unit. This is due to "accommodating improved parts and/or engineering changes" or "standardization of genuine parts".
 - . This manual's exploded views and electrical spare parts lists indicate the part numbers of "the present standardized genuine parts".
 - . Regarding engineering part changes by our engineering department, refer to Sony service bulletins and service manual supplements.
- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

2-8. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switch listed below is on the DM-69 and DM-70 boards. These switches must be set according to operating conditions.

. DM-69 Board

S301:

When the SP format video signal and Conventional format video signal are recorded with mixed on the SP cassette, unstabilized picture may appear at the SP/CONV switching points in the STILL and SEARCH modes (less than $\times 1.2$).

If improve this unstabilized picture in the STILL and SEARCH modes, this switch is set to OFF position.

When the unit is shipped, this switch is set to ON position.

. DM-70 Board

S501: APC Switch

When the tape dubbed by VTR without capstan servo system is played back by this unit, the picture is sometimes not colored because of unusual APC fluctuations. This switch can widen APC lock-range so as to obtain the colored picture.

ON : WIDE (widen APC lock-range)

OFF: NORMAL

When the unit is shipped, this switch is set to the OFF position.

If this switch is set to the ON position, the colored picture cannot obtain sometimes in search mode. This switch should be turned to the OFF position in the normal use.

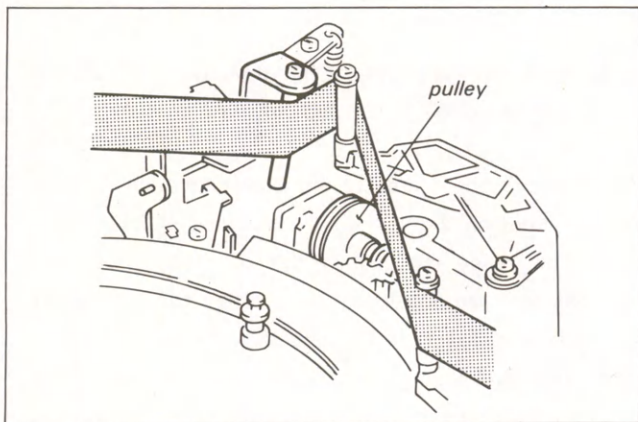
2-9. HOW TO OPERATE THE MACHINE WITHOUT INSTALLING A CASSETTE TAPE

- (1) Remove the Cassette-up Compartment. (Refer to Section 2-1.)
(The Tape Beginning Sensor and Tape End Sensor are disabled according to disconnect the connector of Cassette-up Compartment.)
- (2) Turn the power ON. (The machine enters the FR-STOP mode automatically.)
- (3) The machine can be placed into the desired mode by pressing the function button corresponding to the mode.

2-10. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

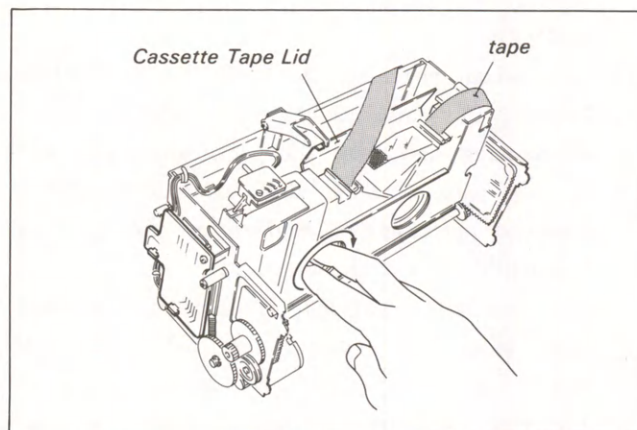
If the EJECT operation becomes impossible due to trouble or the Cassette-up Compartment does not rise when the EJECT operation takes place, the cassette tape can be removed from the set by following the procedures described below.

- (1) Turn the power OFF.
- (2) Remove the Top Panel. (Refer to Section 2-1.)
- (3) Turn the white pulley of the Gear Box by hand in a clockwise direction looking from the front panel side until the Threading Ring is in the FR-STOP position (until the S Drawer Arm is located at the front of CTL head). At this time, the Threading Ring moves in the unthreading direction. But the tape remains at the position of threading completion.

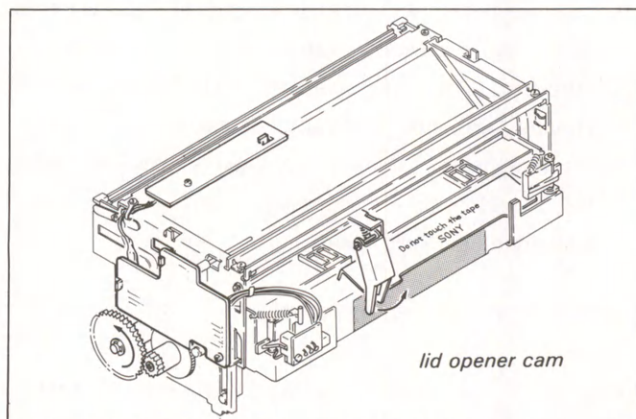


- (4) Disconnect the connector CN1 on the CC-36 board of the Cassette-up Compartment.
- (5) Remove the Cassette-up Compartment Stay. (Refer to Section 2-1.)
- (6) Slowly lift the Cassette-up Compartment with the cassette tape in it. Remove the tape remaining in the set carefully so that it is not damaged.

- (7) Hold the Cassette Tape Lid so that it does not close. Wind the tape into the cassette by turning the reel hub on the back of the cassette by hand.



- (8) Raise the cam for opening the lid and close the cassette lid.



- (9) Remove the tape from the Cassette-up Compartment.
- (10) Turn the gear on the right side of the Cassette-up Compartment by hand in a counterclockwise direction in order to place the Cassette-up Compartment into the up state.
- (11) Locate the cause of the trouble and remedy the problem.

2-11. DIAL MENU OPERATION

The system controls (Still Timer, Preroll Time, etc.) initially set at the factory can be arbitrarily modified using the SEARCH dial, MENU button, DATA button, and SET button.

The dial menu has the following functions:

- . BASIC FUNCTION
- . ENHANCED FUNCTION

2-11-1. Button and Dial Settings

Search dial: Selects the ITEM, Modifies the DATA, Moves the cursor.

MENU button: Selects the ITEM when used with a search dial.

DATA button: Selects the DATA when used with a search dial.

SET button : Writes the DATA into the memory.



2-11-2. Operation

<Put the unit into DIAL MENU operation mode>

The DIAL MENU operation data appears on the Front Panel's time counter display and monitor television (the video signals should be connected to the VIDEO IN connector and the monitor television should be connected to the MONITOR connector on the Connector Panel).

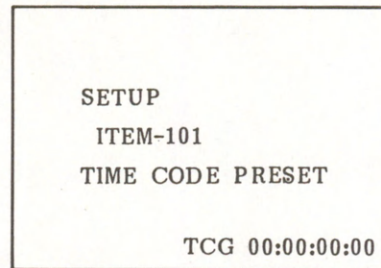
- (1) Set the REMOTE/LOCAL switch on the Front Panel to LOCAL.
- (2) Put the unit into JOG mode (when the SHUTTLE lamp is on, press the SEARCH dial).
- (3) Press the STOP button and put into the STOP mode or PLAY PAUSE mode.

- (4) Set the CTL/TC/DIAL MENU switch on the Front Panel to DIAL MENU.
The unit is put into the DIAL MENU mode and the ◁◻▷ lamp at the top of the SEARCH dial lights.

time counter display



Monitor



When the unit is put into the DIAL MENU mode after power on sequence, the following ITEM is selected automatically.

When the optional time code (BK-705) is installed into the unit:

ITEM-101

When the optional time code (BK-705) is not installed into the unit:

ITEM-105

(NOTE) The VTR cannot be operated normally in the DIAL MENU operation mode.

◁Select the ITEM▷

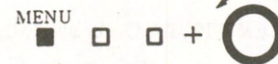
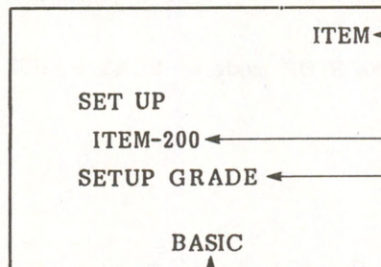
- (5) Turn the search dial while pressing the MENU button.

time counter display



ITEM No.

Monitor



ITEM ← Displayed while the MENU button is pressed.

SET UP

ITEM-200

SETUP GRADE

BASIC

ITEM No.
ITEM contents

When the SEARCH dial is turned, the ITEM No. and contents are changed.

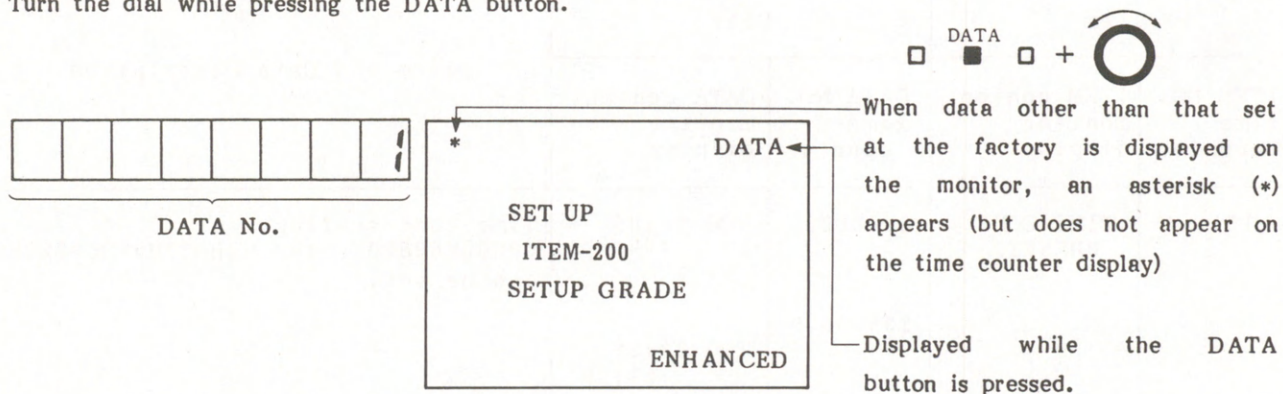
DATA contents } The data corresponding to the ITEM No. are displayed.

- (6) Stop the dial when the desired ITEM is displayed, and then release the MENU button.

When the DATA No. on the time counter display and DATA contents on the monitor blink, they can be modified as following method.

<Modify the data>

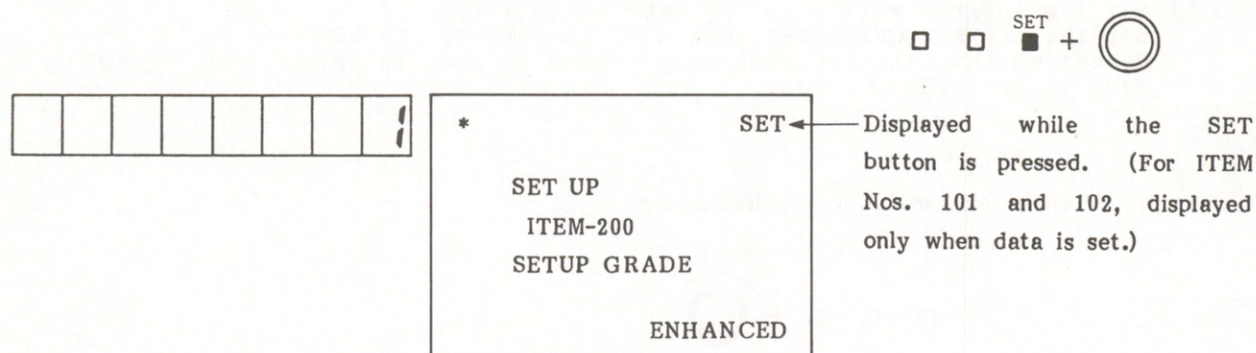
- (7) Turn the dial while pressing the DATA button.



- (8) Stop the dial when the desired data is displayed, and release the DATA button.

<Set the data>

- (9) Press the SET button.



- . The displayed data is written into the memory, the data remains unchanged even if the POWER switch is turned OFF.
- . If the updated data is set, the $\triangle \square \triangle$ lamp at the top of the SEARCH dial flashes for one second when the SET button is pressed. The DATA No. and DATA content blinking stops at that time.

2-11-3. ITEM/DATA

(1) BASIC FUNCTION

(NOTE) ITEM Nos. 101 and 102 are displayed only when an optional time code, BKU-705 is installed into the VTR.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
101	TIME CODE PRESET	00000000 23595929	TCG 00:00 :00:00 TCG 23:59 :59:29	Time code setting. 00H00M00S00Fr through 23H59M59S29Fr can be set. Factory setting: DATA No.00000000 (TCG00:00:00:00)

Setting the data in the ITEM No. 101

(NOTE).Set the INT/EXT switch on the BKU-705 to INT.
.Set the SLAVE LOCK/PRESET switch on the BKU-705 to PRESET.
.Select whether the LTC time code should be used in the DF mode or NDF mode in the ITEM No. 202.

1. Turn the SEARCH dial and blink the desired digit.



2. Turn the dial while pressing the DATA button to set the desired figures.



3. Repeat the steps 1, 2 to set the desired figures.
4. When completed, press the SET button.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
102	U-BIT PRESET	00000000 FFFFFFFF	00 00 00 00 FF FF FF FF	User bit setting. Eight-digit data (hexadecimal) can be recorded into a tape. Data setting is the same as in ITEM No.101. Factory setting: DATA No.00000000 (00 00 00 00)
105	CHARACTER POSITION	0 15	OFF 1 15	Set the character position that is super-imposed on the monitor (only the vertical direction). When set to OFF, the character is not displayed. The displayed data of TC(U-BIT)/CTL can be selected with CTL/TC/DIAL MENU switch on the Front Panel. Factory setting: DATA No.0 (OFF)
106	CHARACTER SIZE	0 1	SMALL LARGE	Set the character size that is displayed on the monitor. Factory setting: DATD No.0 (SMALL)
200	SETUP GRADE	0 1	BASIC ENHANCED	DATA No.0 BASIC:Enable to select ITEM from 101 to 200 in the DIAL MENU operation. DATA No.1 ENHANCED: Enable to select ITEM from 201 to 225 in the DIAL MENU operation. Factory setting: DATA No.0 (BASIC)

(2) ENHANCED FUNCTION

The ENHANCED FUNCTION can be used by setting data to ENHANCED in the ITEM No. 200.

(NOTE) ITEM Nos. 202, 203, and 204 are displayed only when an optional time code, BKU-705 is installed into the VTR.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
201	ERROR STATUS	Error 01 Error 02 Error 03 Error 04 Error 05 Error 10 Error 20 Error 30	REEL STOP TAPE SLACK CAPSTAN ERROR DRUM STOP REEL ERROR HUMID SYSTEM ERROR SENSOR ERROR	Self-diagnostic function. When trouble occurs during normal operation, message "ERROR CODE" appears on the Front Panel's time counter display in any mode. When the unit is put into the DIAL MENU mode to select this ITEM, error status corresponding to the error code are displayed on the monitor. (Refer to Section 2-11-4 for further details.) Note: The ITEM data content cannot be modified. Normal operation: ----- (NONE)
202	DF/NDF SELECT	0 1	NDF DF	Selects whether the LTC time code should be used in the DF mode or NDF mode. DATA No.0 NDF: Non-Drop Frame mode DATA No.1 DF: Drop Frame mode Note: After mode setting, be sure to preset the time code in the ITEM No.101. Factory setting: DATA No.0 (NDF)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
203	PHASE CORRECTION	0 1	OFF ON	Selects whether or not the phase correction of the LTC signal generated using a time code generator should be controlled. DATA No.0 OFF: No phase correction is controlled. DATA No.1 ON: The phase correction is controlled. Factory setting: DATA No.1 (ON)
204	U-BIT BINARY GROUP FLAG	00 01 10 11	NOT SPECIFIED ISO CHARACTER UNASSIGNED1 UNASSIGNED2	Sets the user bit status of the time code signal generated using a time code generator. DATA No.00 NOT SPECIFIED: Character setting is not specified. DATA No.01 ISO CHARACTER: 8-bit character setting based on ISO646 and ISO2022. DATA No.10 UNASSIGNED1: Undefined DATA No.11 UNASSIGNED2: Undefined Factory setting: DATA No.00 (NOT SPECIFIED)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
205	HOUR METER (DRUM)	00000 15000	00000H 15000H	Displays the rotation time of the upper drum. Head replacement can be decided at that time. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
206	HOUR METER	00000 15000	00000H 15000H	Displays the total time of the power on sequence. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
207	STILL TIMER	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0.5 SEC 1 SEC 5 SEC 10 SEC 20 SEC 30 SEC 40 SEC 50 SEC 1 MIN 2 MIN 3 MIN 4 MIN 5 MIN 6 MIN 7 MIN 8 MIN	The unit automatically enters the tape PROTECTION mode after it has been in the tape STOP (or STILL) mode for a fixed time to prevent the video head from clogging (to reduce the tape damage). This item sets the transition time of the tape STOP to tape PROTECTION mode. The time can be set from 0.5 seconds to 8 minutes. Factory setting: DATA No.15 (8 MIN)
209	SELECTION FOR SEARCH DIAL ENABLE	0 1	DIAL DIRECT VIA SEARCH BUTTON	When the SEARCH dial is turned or the SEARCH button is pressed, the unit enters the SEARCH mode. This item sets entering the SEARCH mode. DATA No.0 DIAL DIRECT: When the SEARCH dial is turned, the unit enters the SEARCH mode from any mode other than REC/EDIT. DATA No.1 VIA SEARCH BUTTON: When the SEARCH button is pressed, the unit enters the SEARCH mode. Factory setting: DATA No.0 (DIAL DIRECT)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
214	PREROLL TIME	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0 SEC 1 SEC 2 SEC 3 SEC 4 SEC 5 SEC 6 SEC 7 SEC 8 SEC 9 SEC 10 SEC 11 SEC 12 SEC 13 SEC 14 SEC 15 SEC	Sets the preroll time during editing. The preroll time can be set from 0 to 15 seconds. Factory setting: DATA No.05 (5 SEC)
217	EDIT DELAY	0 1	2FRAME 6FRAME	Receive a recording command from the remote control unit during tape EDITING AND SELECTS THE NUMBER OF frames required until the VTR starts recording. DATA No.0 2 FRAME: Starts recording two frames after the command is received. The audio signal is double recorded on the tape. DATA No.1 6 FRAME: Starts recording six frames after the command is received. This compensates the edit timing of audio and video signals. This is the standard setting of this unit. (NOTE) Set according to the editing machine. Factory setting: DATA No.1 (6 FRAME)

2-11-4. System Error

When a trouble occurs during normal operation and an error code appears on the time counter display of the Front Panel, the error status corresponding to the error code is displayed on the monitor by selecting the Item No. 201 on the dial menu. The error cause can be learned at that time.

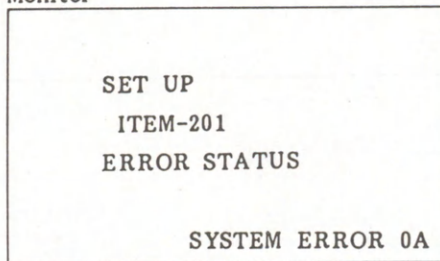
counter display	monitor display	Description
Error 02	TAPE SLACK	Excessive tape tension
Error 10	HUMID	The condensation
Error 20	SYSTEM ERROR	Mechanical error. Distinguished by the suberror code. (Refer to the following.)
Error 21	_____	RAM error when the POWER is ON.
Error 22	SYSTEM ERROR	Communication error between optional BKU-703 and the unit.
Error 23	SYSTEM ERROR	Communication error between microcomputers M1 and M2. (Detected by M1 side.)
Error 90	_____	Communication error between SY board and KY board.
Error 99	_____	Lacking the 1/2 VD pulse to supply for the SY board.

(NOTE) Displayed on the time counter display about ERROR 21, 90 99.

When Error 20 "SYSTEM ERROR" appears, a suberror code is displayed at the lower right corner on the monitor.

The suberror code is described below.

Monitor



↑ Suberror code

The suberror code is a two-digit hexadecimal number. Assume that the high-order digit is called Error 1 and the low-order digit called Error 0.

Error 0

0.	Normal operation
1.	Entering the FR STOP mode from threading exceeds the prescribed time (seven seconds).
2.	Entering the THREAD END mode from threading exceeds the prescribed time.

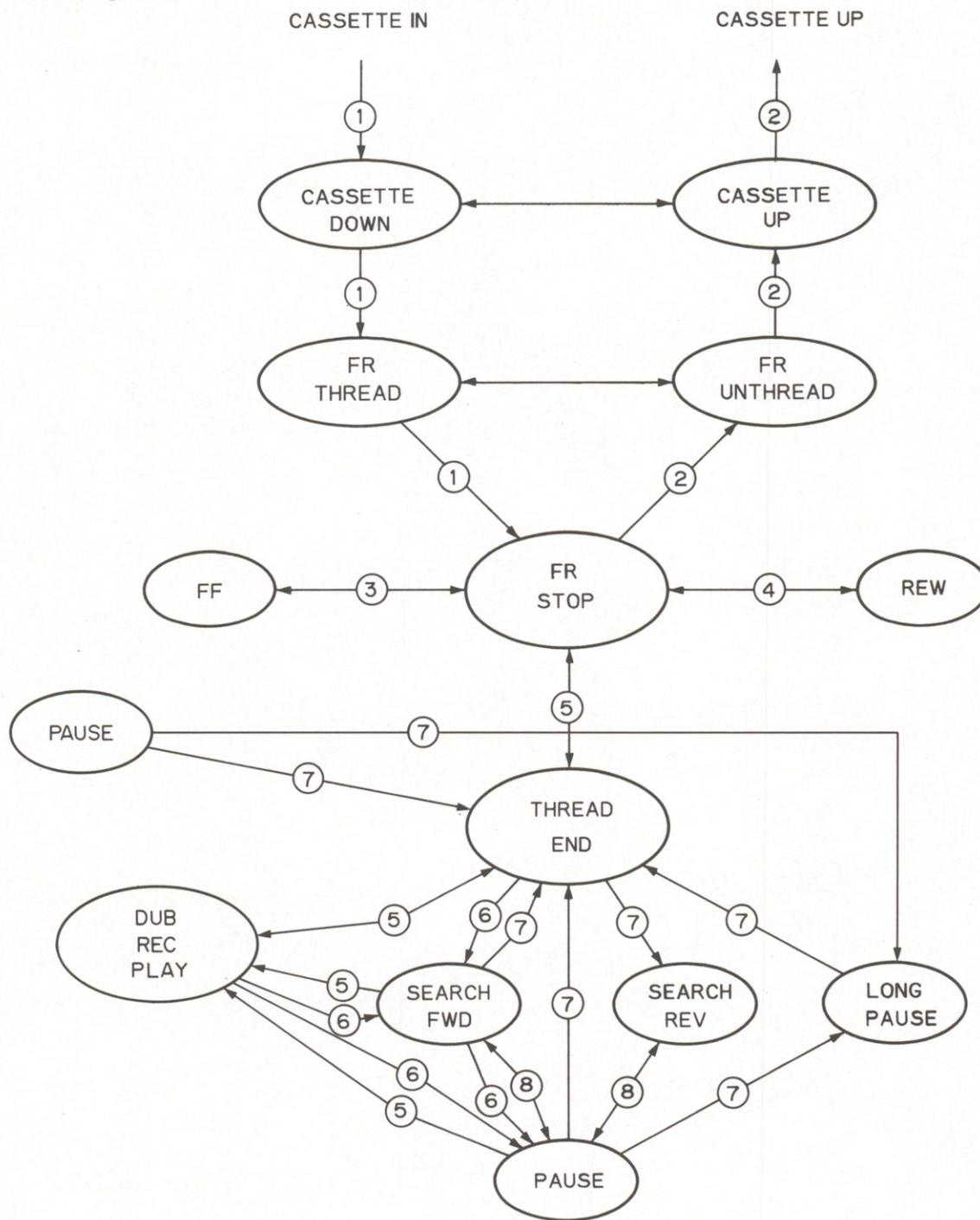
3.	Entering the FR-STOP mode from the THREAD END mode during unthreading exceeds the prescribed time.
4.	Returning from the FR-STOP mode to the CASSETTE DOWN position during unthreading exceeds the prescribed time.
5.	When a cassette is inserted and the EJECT button is pressed before the cassette-up compartment is lowered, raising the cassette exceeds the prescribed time.
6.	Detects the tape slack in FF/REW mode.
7.	Detects the tape slack during the unthreading operation from FR-STOP state.
8.	Detects the tape slack during the unthreading operation from the THREAD END to FR-STOP modes.
9.	Detects the tape slack in x5/x8 times normal forward mode.
A.	Detects the tape slack in x1 to x3 times normal forward mode.
B.	Detects the tape slack in x1/2 to x1 times normal forward mode.
C.	Detects the tape slack in x1/5 to x1/2 times normal forward mode.
D.	Detects the tape slack in x1/10 to x1/5 times normal forward mode.
E.	Detects the tape slack in x1/30 to x1/10 times normal forward mode.
F.	Does not stop the rotation of the capstan motor even if the STOP COMMAND send to it.

Error 1

0.	Normal operation
1.	Microcomputer M2 is not interrupted by the signal eight times the frequency of the 1/2 VD pulse.
2.	Communication error between microcomputers M2 and AV.
3.	Communication error between microcomputers M2 and SV.
4.	Communication error between microcomputers M1 and M2.
5.	Communication error between optional BKU-703 and the unit.
6.	Communication error between microcomputers M1 and M2. (Detected by M1 side.)

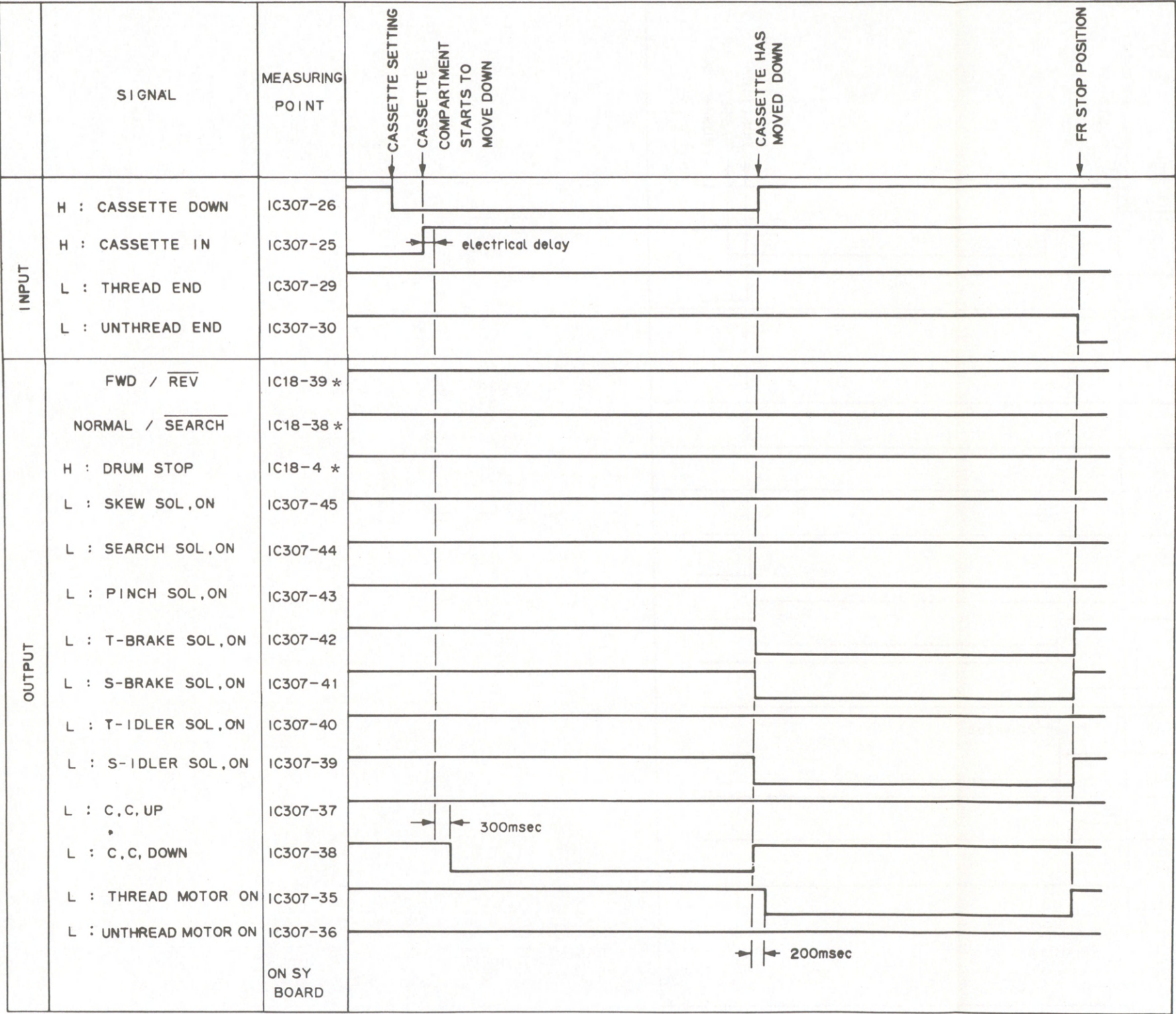
2-12. TIMING CHART

Mode Conversion Diagram



NOTE : Number in the Figure means title number of
Timing chart.

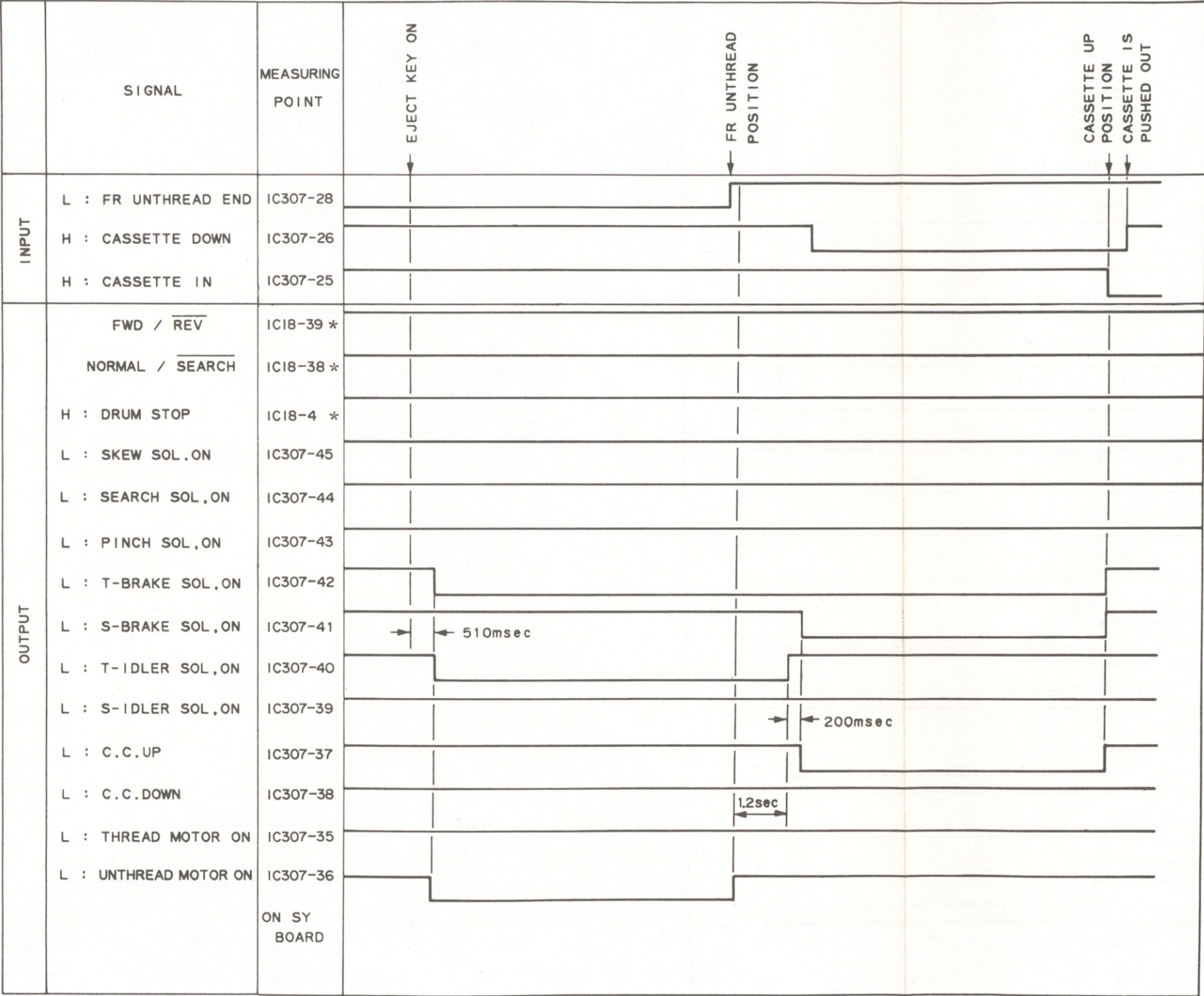
1. THREADING OPERATION (CASSETTE IN→CASSETTE DOWN→FR STOP POSITION)



* NOTE: IC18 is on the SV board

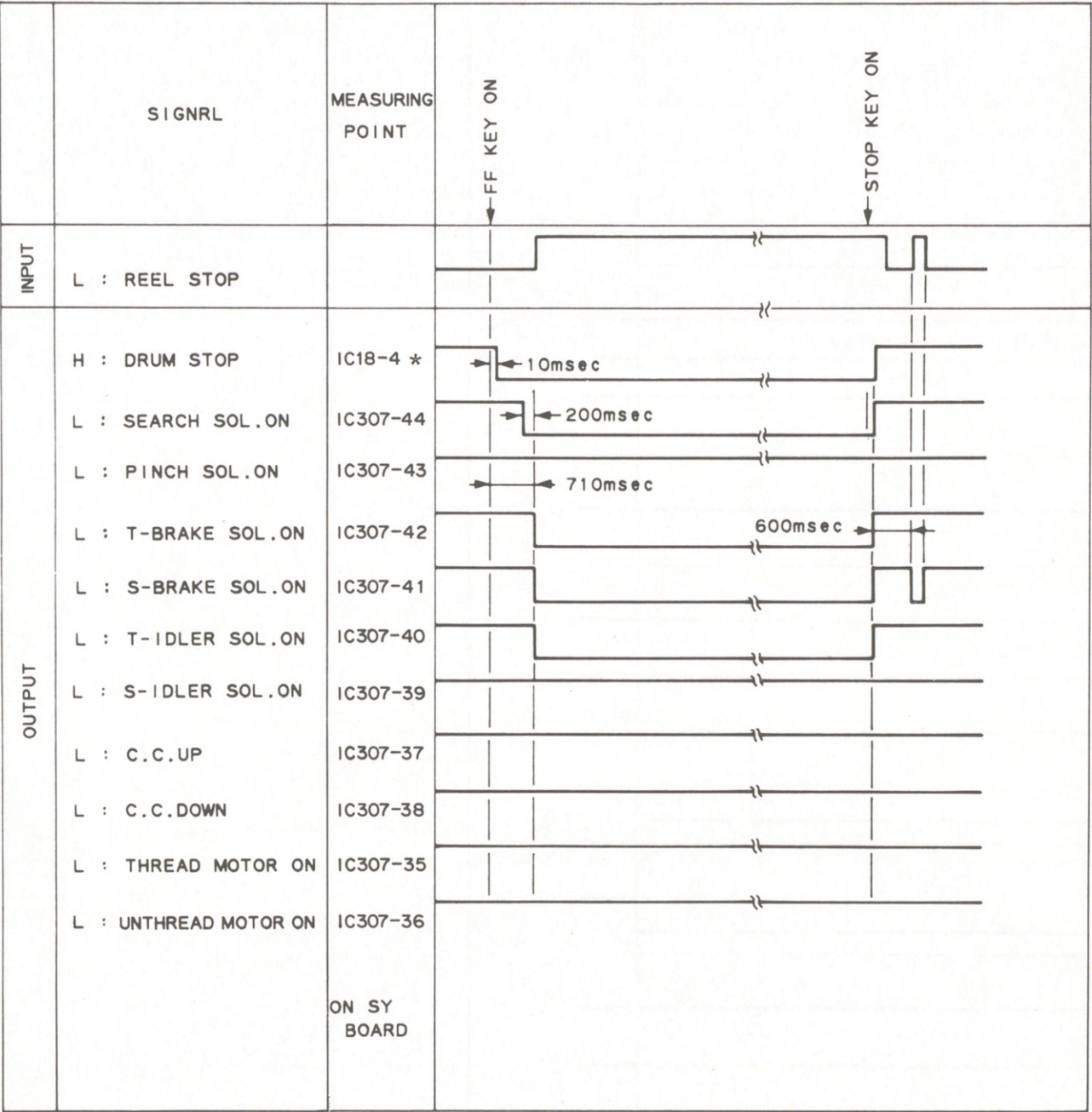
C.C. = CASSETTE UP COMPARTMENT

2. UNTHREADING OPERATION (FR STOP POSITION →FR UNTHREAD END POSITION →CASSETTE UP)



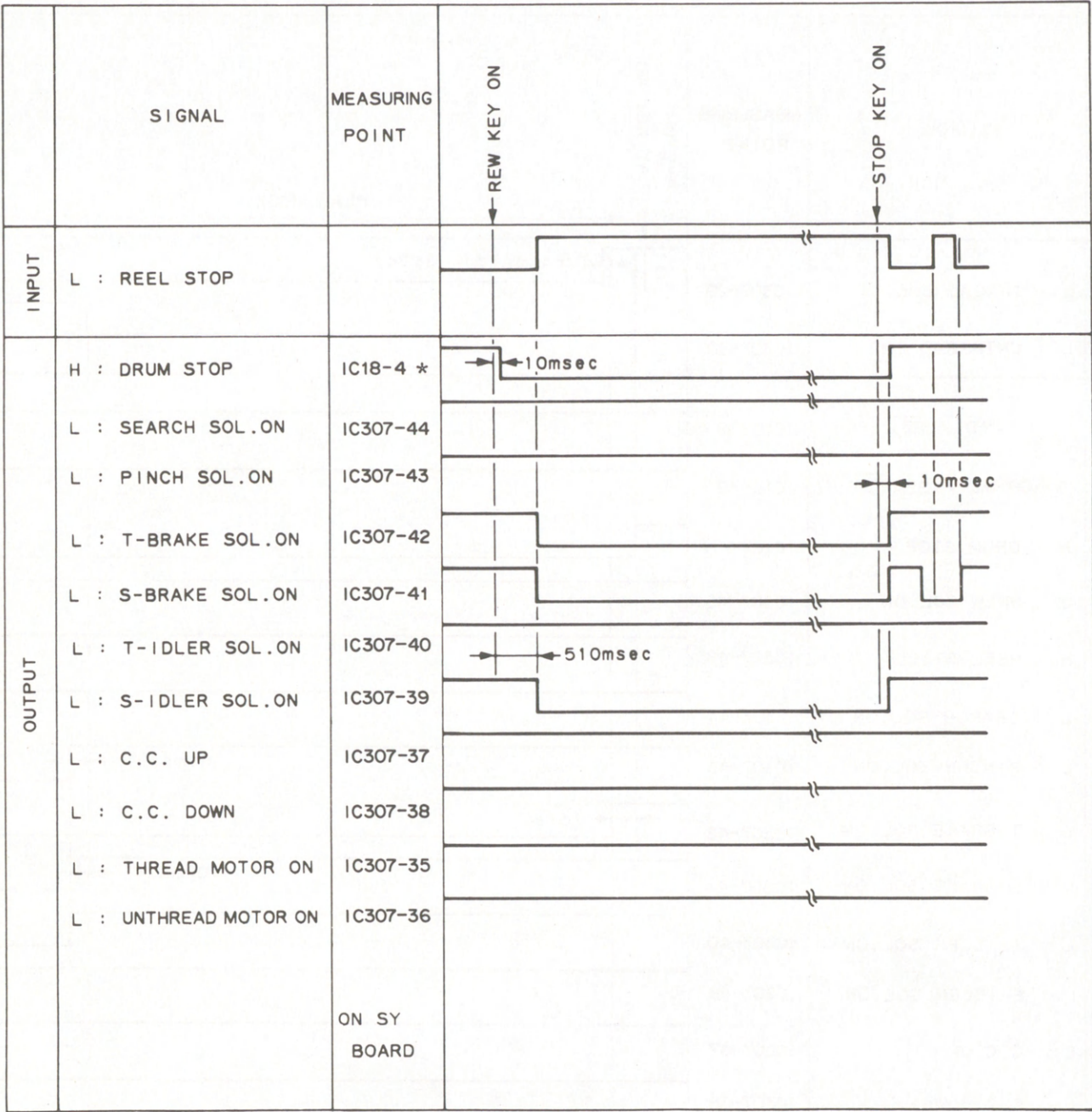
* NOTE: IC18 is on the SV board

3. FF MODE (FR STOP→FF→FR STOP)



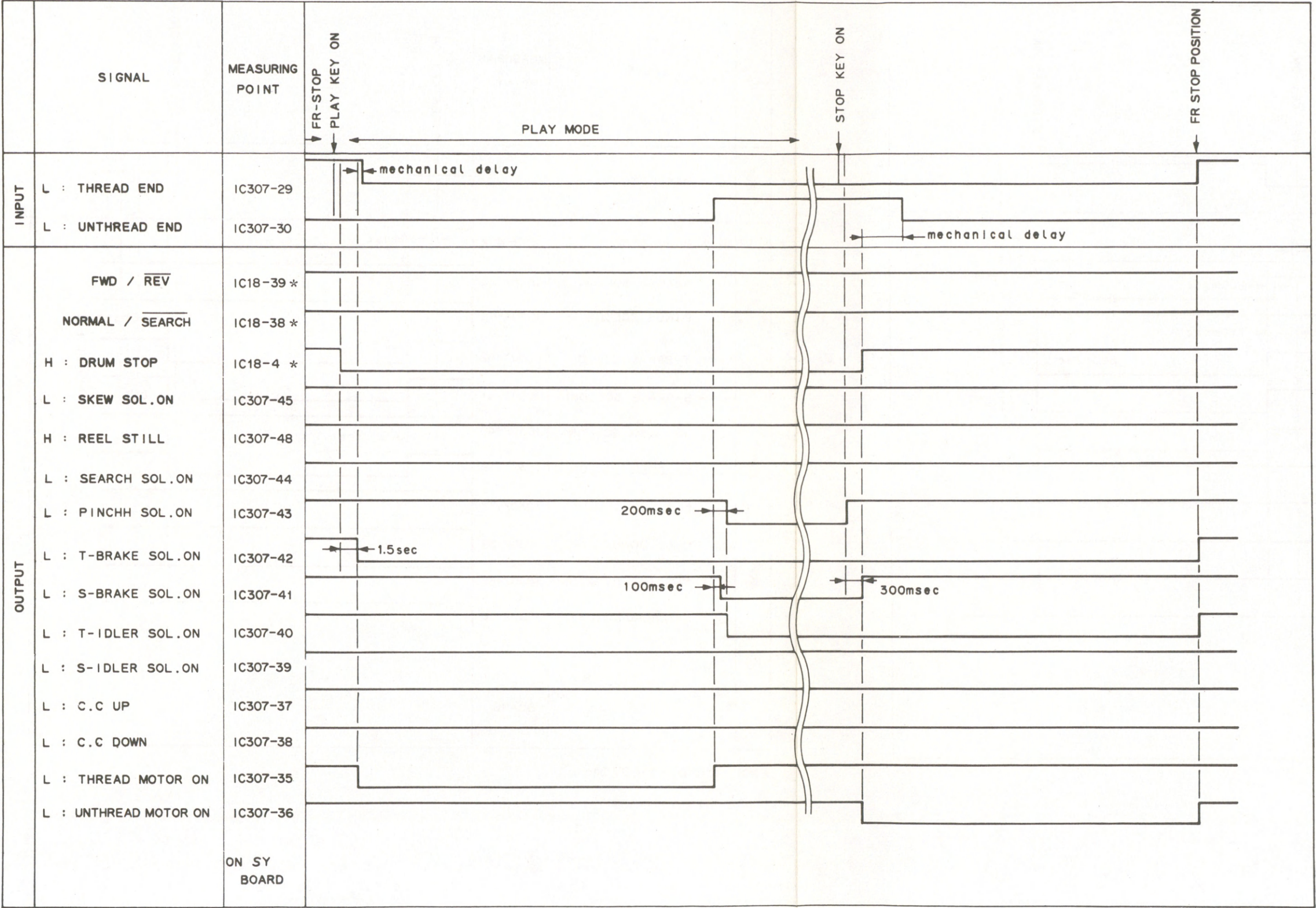
* NOTE: IC18 is on the SV board

4. REW MODE (FR STOP→REW→FR STOP)



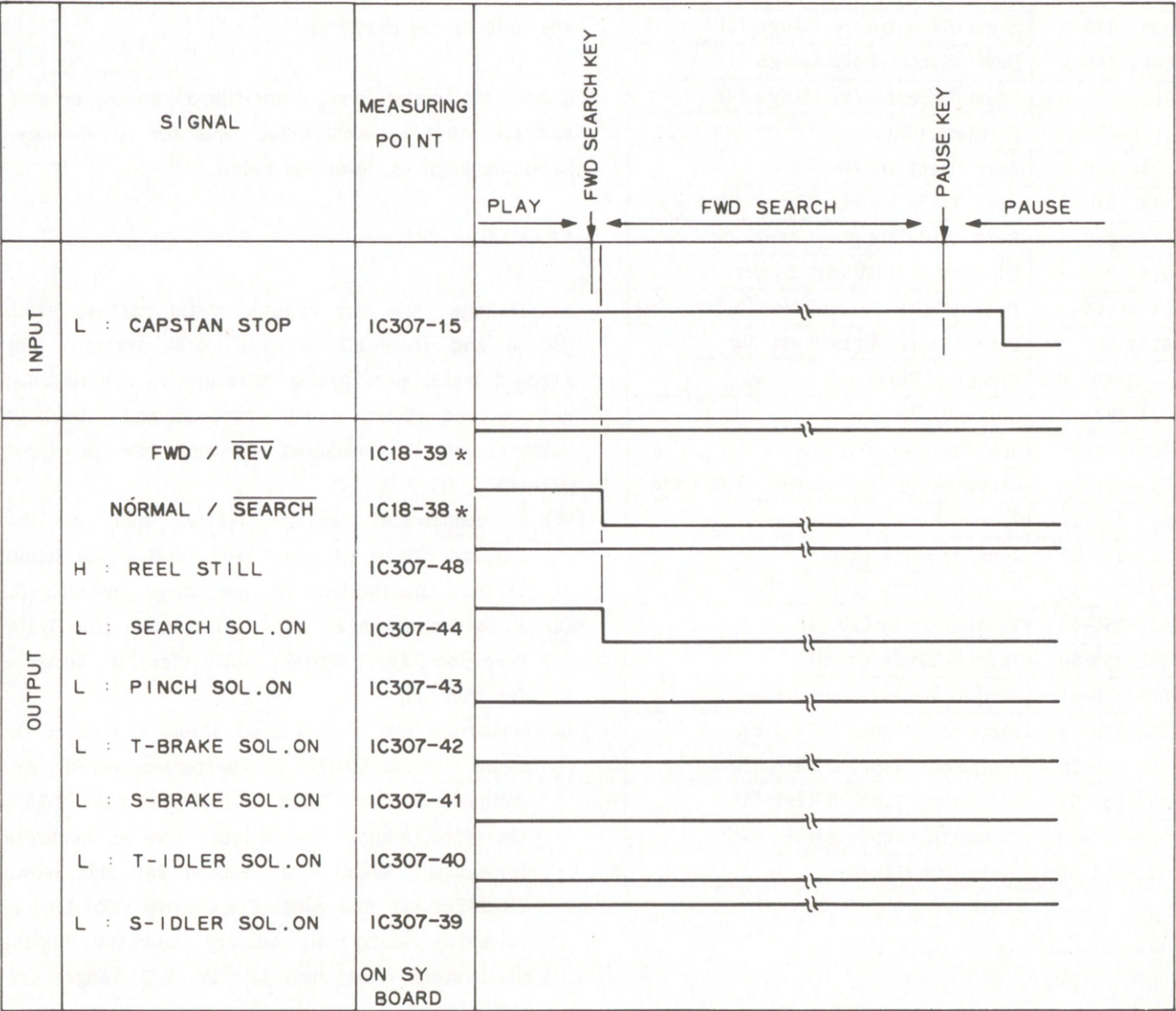
* NOTE: IC18 is on the SV board

5. PLAY MODE (FR STOP→PLAY→FR STOP)



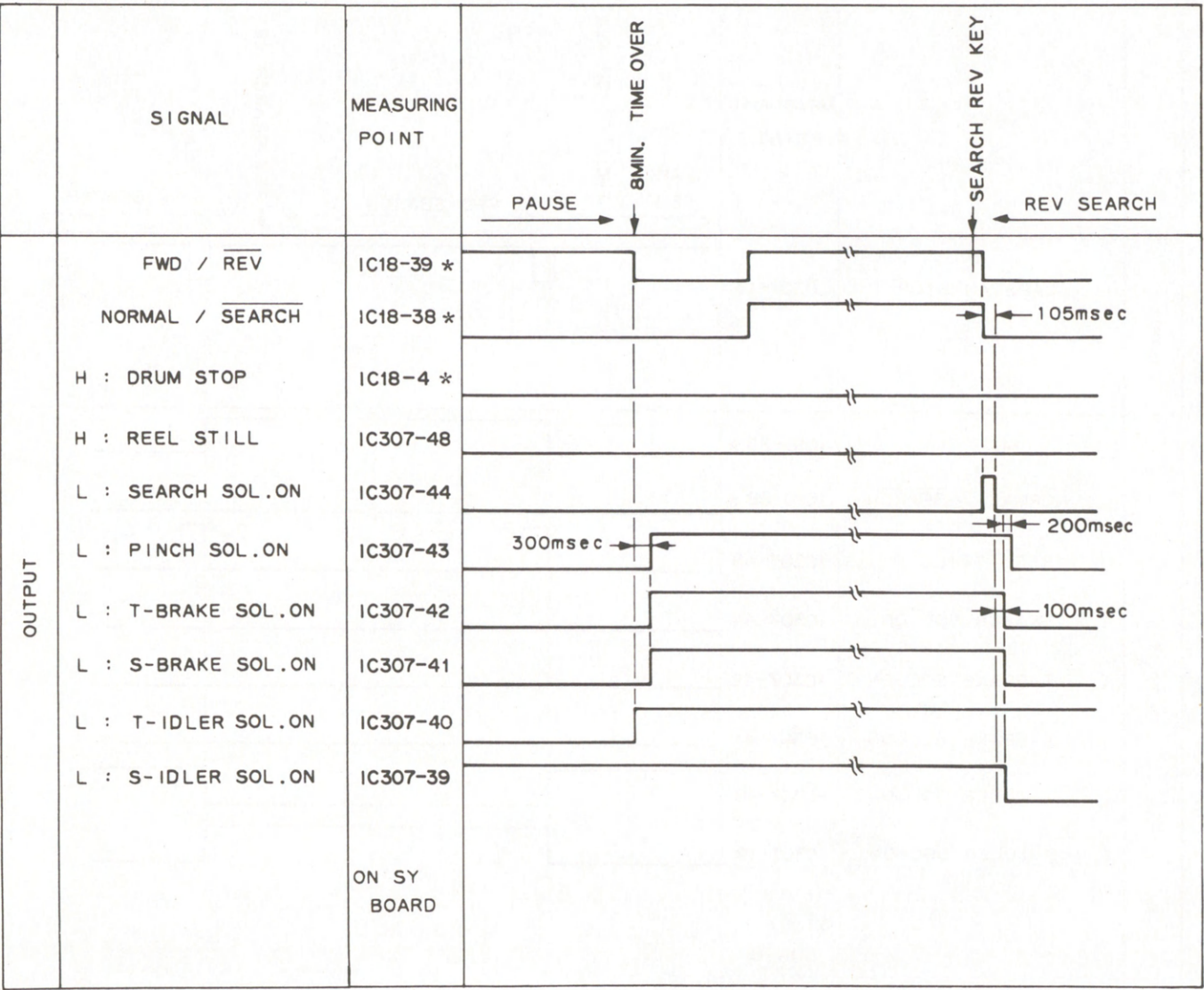
* NOTE: IC18 is on the SV board

6. PLAY→FWD SEARCH→SEARCH PAUSE



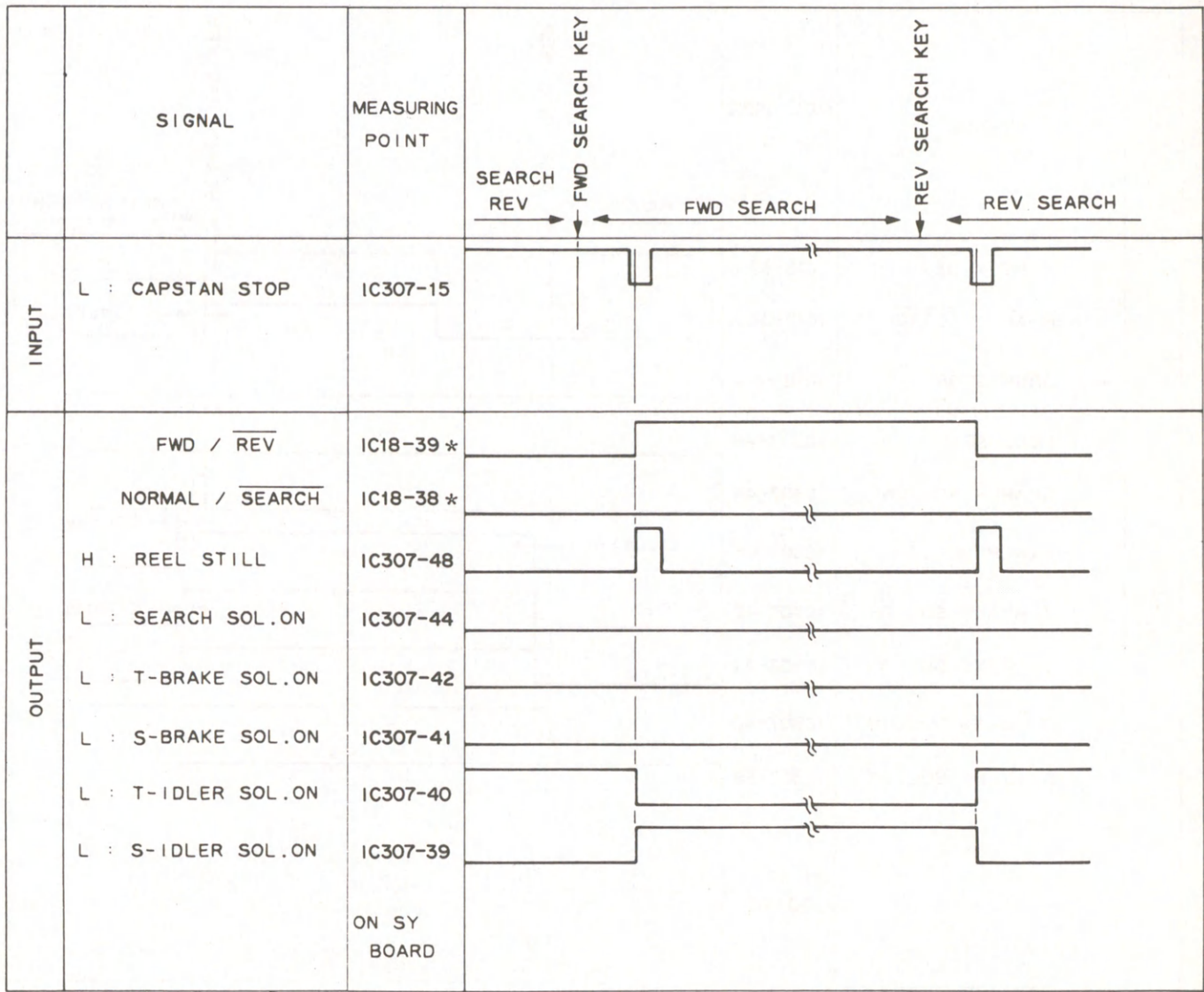
* NOTE: IC18 is on the SV board

7. PLAY PAUSE→LONG PAUSE→REV SEARCH



* NOTE: IC18 is on the SV board

8. REV SEARCH→(FWD PAUSE)→FWD SEARCH→(FWD PAUSE)→REV SEARCH



* NOTE: IC18 is on the SV board

2-13. FIXTURE

Part No.	Description
J-6001-820-A	Drum Eccentricity Gauge (3)
J-6001-830-A	Drum Eccentricity Gauge (2)
J-6001-840-A	Drum Eccentricity Gauge (1)
J-6001-930-A	Drum Eccentricity Gauge (4)
J-6009-830-A	Flatness Plate
J-6026-240-A	Adjustment Driver
J-6130-010-A	Reel Table Height Check Base Jig
J-6130-020-A	Reel Table Height Check Jig
J-6153-020-A	Dihedral Adjustment Driver
J-6150-140-A	Eccentricity Screwdriver (6 mm dia.)
J-6153-580-A	Pinch Lever Adjustment Jig
Y-2031-001-0	Cleaning Fluid
2-034-697-00	Cleaning Piece
3-702-216-01	Back Tension Adjustment Jig
3-702-391-01	Eccentricity Screwdriver (5 mm dia.)
7-661-018-01	Sony Oil
7-732-050-20	Tension Scale (50g)
7-732-050-30	Tension Scale (100g)
7-732-050-40	Tension Scale (200g)
7-732-050-50	Tension Scale (500g)
8-899-999-53	Torque Measurement Tape
8-960-015-04	Alignment Tape, RR5-3 SA
8-960-015-16	Alignment Tape, RR5-4 SB
8-960-037-02	Alignment Tape, RR2-1 SD
8-960-037-80	Alignment Tape, RR5-1 SD
9-911-053-00	Thickness Gauge

2-14. SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the unit to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis must not exceed 0.5mA (500 microamperes). Leakage current can be measured by any one of three methods.

- (1) A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturer's instructions to use these instruments.
- (2) A battery-operated AC milliammeter. The Date Precision 245 digital multimeter is suitable for this job.
- (3) Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V; therefore, analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable.

(Refer to Fig. A)

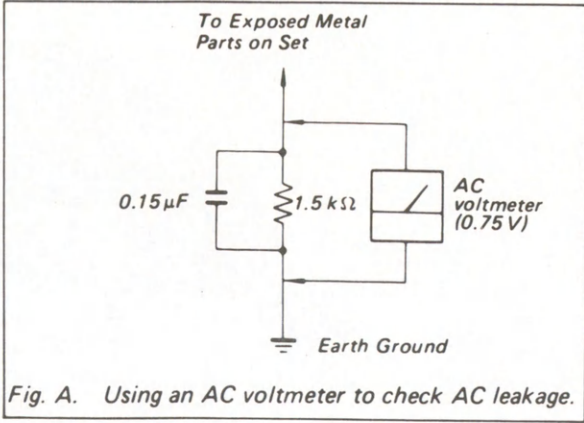


Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 3

PERIODIC CHECK AND MAINTENANCE

It is recommended that the following periodic check and maintenance schedule be employed in order to obtain maximum performance and longer tape life from the unit.

3-1. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair regardless the operating hours of the machine.

- (1) Cleaning of the video heads.
 - . Press the cleaning piece moistened with the cleaning fluid and turn the drum slowly with hand, cleaning the heads.
(Never turn the motor by the electric power for the cleaning.)
 - . Never move the cleaning piece in the vertical direction of head tip in the cleaning. It tends to damage the video head tips.
- (2) Cleaning of tape running system
 - . Wipe the tape bearing surfaces (of the tape guide, drum, capstan, and pinch roller) with cleaning piece saturated with the cleaning fluid.
- (3) Cleaning of drive system
 - . Wipe the drive system (such as belt, idler, and reel table surface) with cleaning piece saturated with the cleaning fluid.

3-2. PERIODIC CHECK

Perform the maintenance checks described separately in accordance with the operational hours of the unit.

3-3. HOURS METER

This VTR has an hours meter. The hours meter has two display modes, and these modes can display on the Time Counter Display.

Two display modes are as follows:

1. Displays the accumulated time of the rotation of the upper drum. The data from 0 to 15000 hours can be displayed.
2. Displays the accumulated power-on time. The data from 0 to 15000 hours can be displayed.

It is recommended to perform the periodic check and maintenance based on the hours meter.

How to put the Time Counter Display into the Hours Meter mode, please refer to Section 2-11. Dial Menu Operation.

HOURS METER mode:

- . Menu No.205: HOURS METER (DRUM)
Rotation time of the upper drum
- . Menu No.206: HOUR METER
Power-on time

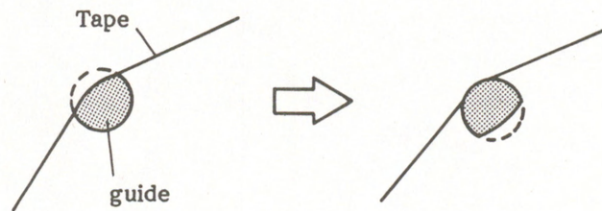
3-4. OTHERS

- (1) Sony oil
 - . Be sure to use the Sony oil as the lubrication oil. (If oil other than the Sony oil is used, various troubles due to different viscosity tends to be caused.)
Sony oil: Part No. 7-661-018-01
 - . Use the Sony oil in which dust or other foreign material have not mixed for lubricating the bearing. (If foreign material is in the oil, wear or burning of the bearing tends to be caused.)

○ : Cleaning ◆ : Replacement ◇ : Check (Adjustment) ◎ : Rotation

Item	Operating hours(H)		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Reference	Reference of Exploded View
	Part No.	Menu No.												
Tape path block	_____	205	○	○	○	○	○	○	○	○	○	○	_____	_____
Upper drum ass'y (DUR-43-R)	A-6709-615-A	205	○	◆	○	◆	○	—	○	◆	○	◆	4-1	16-13
Head drum ass'y (DUH-43B-R)	A-6709-674-A	205	○	○	○	○	○	◆	○	○	○	○	4-2	16-13
Audio/CTL head	8-825-578-22	205	○	○	○	○	○	◆	○	○	○	○	4-7	16-13
Time code head (PP295-58)	8-825-771-31	205	○	○	○	○	○	◆	○	○	○	○	_____	16-15
FR CTL head (PP170-58)	8-825-514-20	205	○	○	○	○	○	◆	○	○	○	○	4-4	16-15
Full erase head	8-825-544-20	205	○	○	○	○	○	◆	○	○	○	○	_____	16-15
Pinch roller ass'y	A-6750-223-A	205	○	◆	○	◆	○	◆	○	◆	○	◆	4-9	16-9
Capstan motor (BHF-1915B)	8-835-258-02	205	—	—	—	—	—	◆	—	—	—	—	4-3	16-13
Reel driving motor (FN30-T26N1E)	8-835-178-01	205	—	—	—	—	◆	—	—	—	—	◆	_____	16-3
Threading motor (DNR-4700A)	1-541-376-11	205	—	—	—	—	◆	—	—	—	—	◆	4-10-2	16-9
Tape guide, TG-3	3-660-102-00	205	○	○	○	○	○	◎	○	○	○	○	_____	16-13
Tape guide, TG-4	3-718-388-01	205	○	○	○	○	○	◎	○	○	○	○	_____	16-13
* Reel belt	3-668-785-00	205	○	○	○	◆	○	○	○	◆	○	○	_____	16-7
* Threading belt	3-672-737-01	205	○	○	○	◆	○	○	○	◆	○	○	4-10-3	16-9
Reel table ass'y	A-6739-017-A	205	○	○	○	○	○	◆	○	○	○	○	_____	16-3, 16-5
* Idler tire ass'y	X-3646-026-0	205	○	○	○	◆	○	○	○	◆	○	○	_____	16-5
* Tension regulator band ass'y	X-3668-707-0	205	—	—	—	◆	—	—	—	◆	—	—	_____	16-3
* Lining holder ass'y	X-3668-749-0	205	—	—	—	◆	—	—	—	◆	—	—	_____	16-3, 16-5
* R brake ass'y	X-3668-737-0	205	—	—	—	◆	—	—	—	◆	—	—	_____	16-5
Idler pulley block ass'y	A-6740-069-B	205	—	—	—	—	—	◆	—	—	—	—	_____	16-7
Worm pulley ass'y	X-3668-743-0	205	—	—	—	◆	—	—	—	◆	—	—	_____	16-9
Check the FWD back tension	_____	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-5	_____
Check the brake torque	_____	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-1	_____

- (NOTE 1) The Upper Drum Ass'y is included in the Head Drum Ass'y.
When replacing the Head Drum Ass'y, the Upper Drum Ass'y is replaced together.
- (NOTE 2) Be sure to clean the tape run area in repairing.
- (NOTE 3) Operating hours (such as replacement, check and so on) will be different in operating environment.
- (NOTE 4) We recommend you to replace early the * marked parts for maintenance of the best condition.
- (NOTE 5) Ⓒ (Rotation) marked item means to turn the tape guide by hand so that the worn portion of the tape guide doesn't touch a tape. Turn the tape guide by 180°.



SECTION 4

REPLACEMENT OF MAJOR PARTS

4-1. REPLACEMENT OF THE UPPER DRUM

- . The Rotary Video Heads cannot be replaced individually. The entire Upper Drum Assembly should be replaced when any of these heads fails.

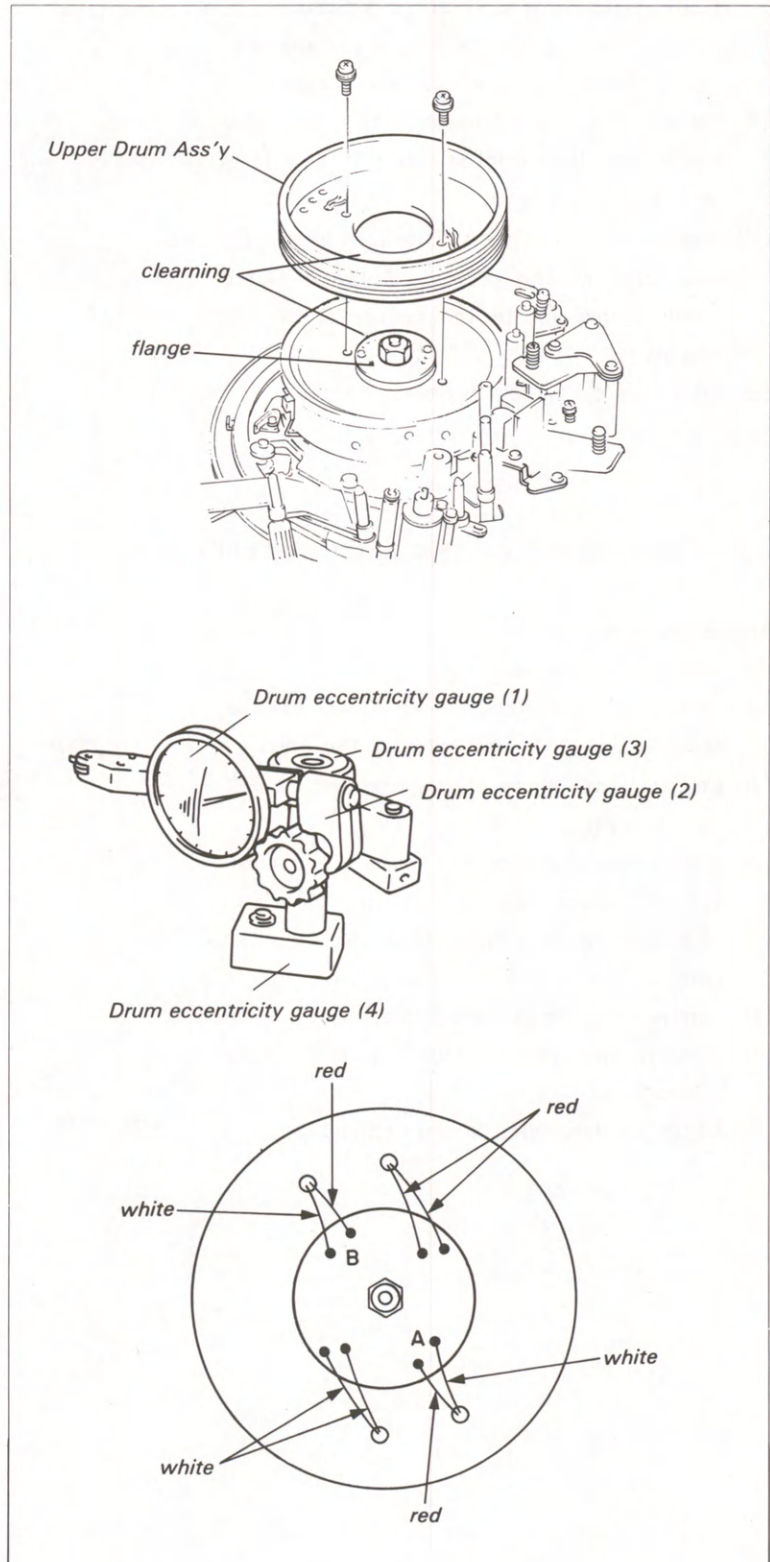
Tool: Drum eccentricity gauge (1)
Drum eccentricity gauge (2)
Drum eccentricity gauge (3)
Drum eccentricity gauge (4)

Replacement procedure:

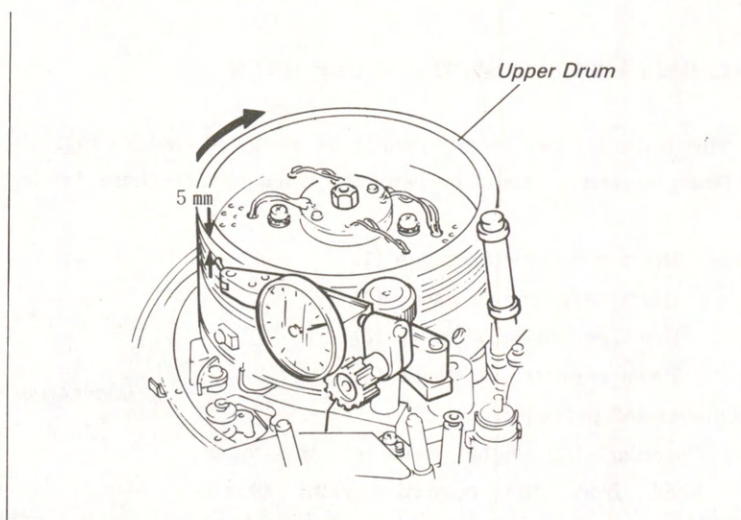
- (1) Unsolder the eight leads of the video head from the printed circuit board. Remove the two fixing screws and then remove the Upper Drum Assembly from the Head Drum Assembly.
- (2) Clean the matching surfaces of the flange and new Upper Drum Assembly with a cloth moistened with cleaning fluid. (If there is a spacer between the drum and the flange, it should be left on the flange. If the spacer is lost, correct interchangeability cannot be obtained.)
- (3) Place the Upper Drum Assembly so that the three red leads matches side "B" of the printed circuit board as shown in the figure. Thread the two fixing screws snugly but do not tighten them.

Adjustment procedure:

- (1) Remove the S Guard Block. (The connector at the bottom of the S Guard is inserted into the connector on the chassis.)
- (2) Assemble the Drum Eccentricity Gauges (1), (2), (3) and (4) as shown in the figure. Set the assembled gauges on the unit so that the probe tip is positioned at a point about 5 mm from the top edge of the Upper Drum.
- (3) Turn the Upper Drum slowly in the clockwise direction and check that the gauge deflection is within 5 microns during one complete revolution of the Upper Drum. If it is within specification, proceed with the Step (5). If it is not, perform Step (4).



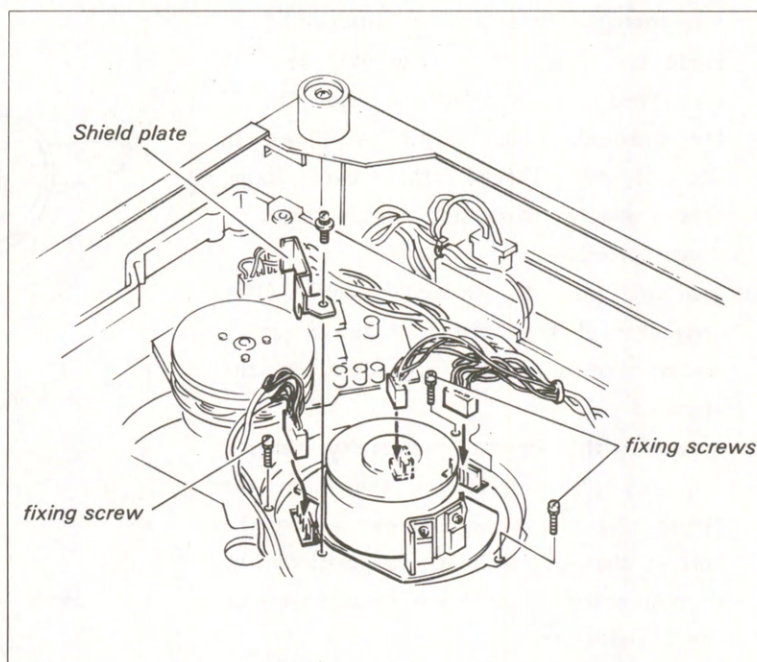
- (4) Tap the inside of the Upper Drum with a nylon hammer or a screwdriver handle until the gauge deflection remains within 5 microns.
- (5) After the adjustment, alternately tighten the two fixing screws of the Upper Drum. (Tightening torque: 14 to 16 kg-cm)
- (6) After tightening the screws, check that the gauge deflection is within 5 microns.
- (7) Solder the eight leads from the video heads to the printed circuit board as shown in the figure.
- (8) Install the S Guard Block. (Insert the connector at the bottom of the S Guard Block securely into the connector on the chassis.)
- (9) Adjust as described in Section 4-11.



4-2. REPLACEMENT OF THE DRUM ASSEMBLY

Replacement procedure:

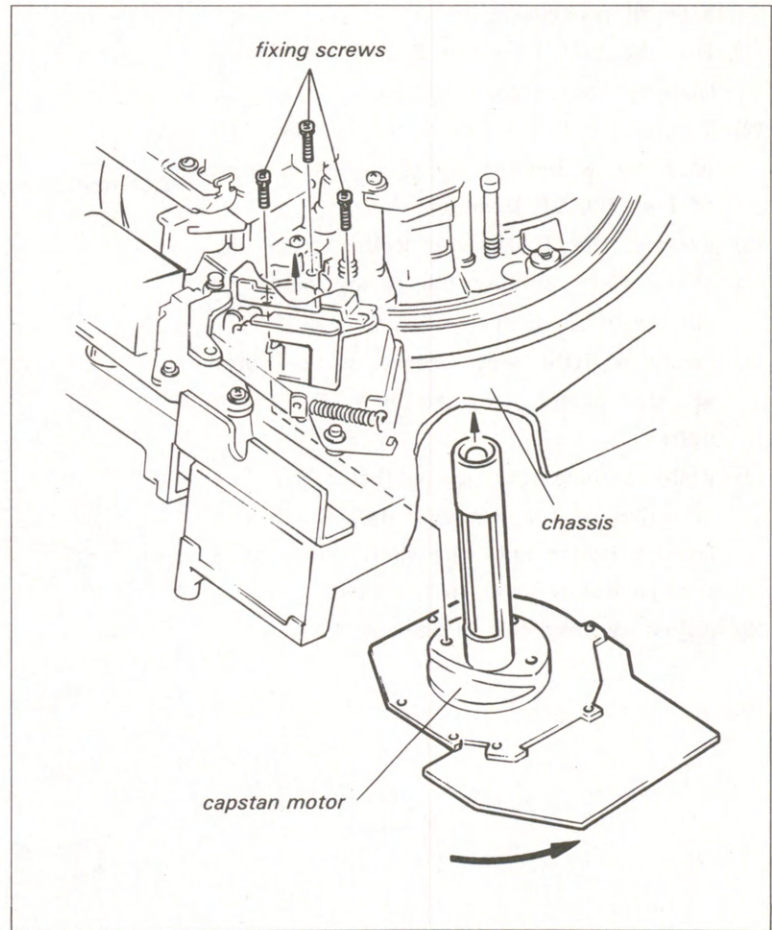
- (1) Remove the Shield Plate.
- (2) Disconnect the three connectors of the drum assembly on the back of the unit.
- (3) Remove the three fixing screws which hold the drum.
- (4) Install the drum on the base while turning the drum assembly in the clockwise direction when viewed from top of the unit.
- (5) Connect the three connectors.
- (6) Tighten the fixing screw of the Shield Plate.
- (7) Adjust as described in Section 4-11.



4-3. REPLACEMENT OF THE CAPSTAN MOTOR

Replacement procedure:

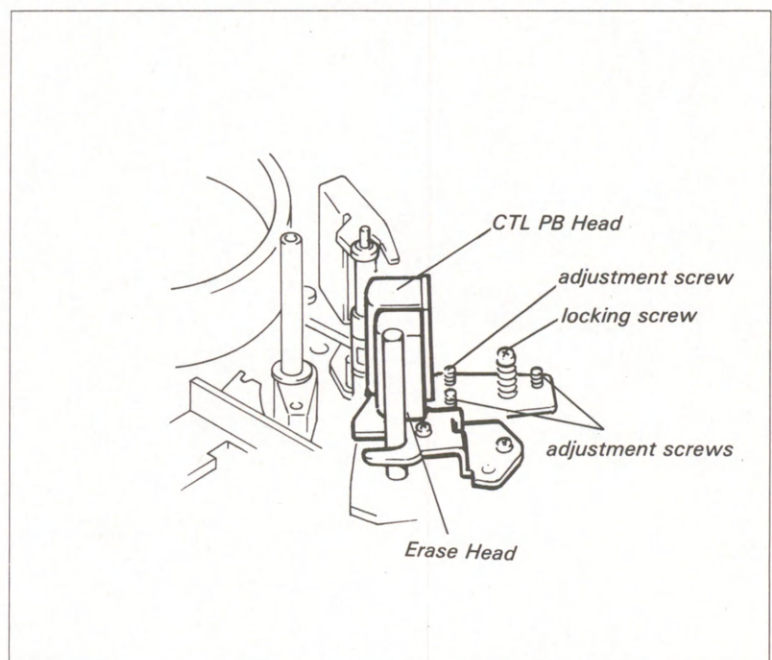
- (1) Remove the Capstan Motor from the unit.
- (2) Install the new Capstan Motor and thread the three fixing screws snugly but do not tighten them.
- (3) Tighten the fixing screws while turning the Capstan Motor in the direction of the arrow.
- (4) Adjust as described in Section 4-11.



4-4. REPLACEMENT OF THE FR CTL (CTL PB) HEAD

Replacement procedure:

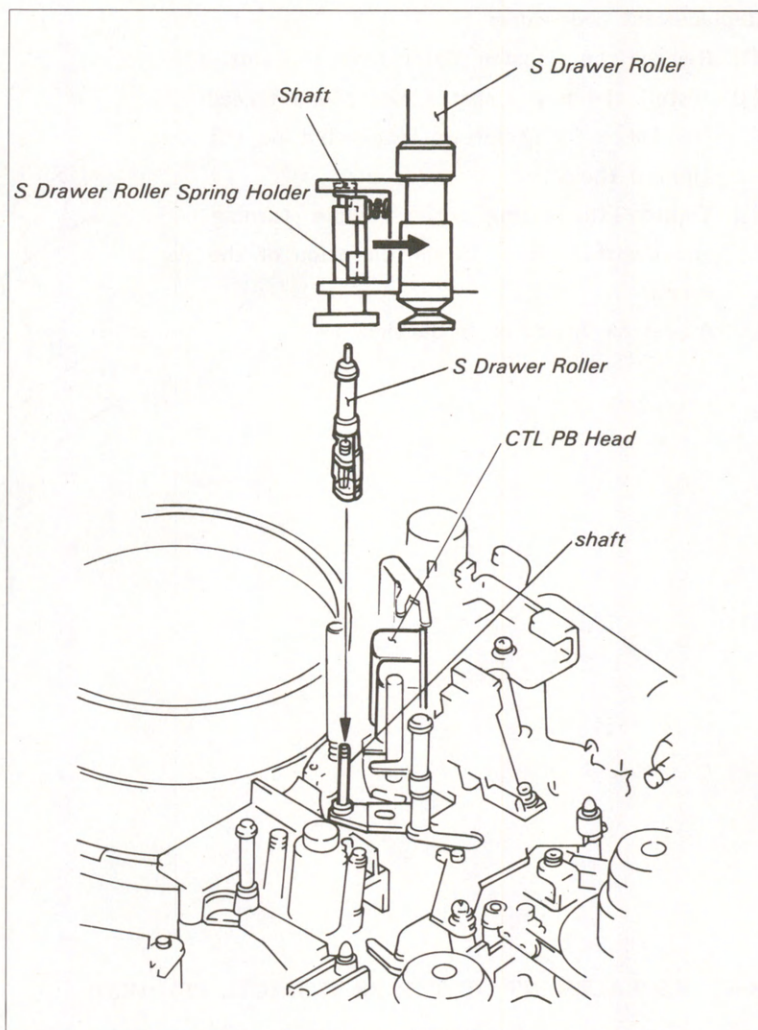
- (1) Disconnect CN341 and CN342 on the EC-32 Board.
- (2) Remove the locking screw and remove the CTL PB Head Block from the unit. Never tighten or loosen the three adjustment screws.
- (3) Remove the two fixing screws at the bottom of the bracket and remove the head.
- (4) Remove the EC-32 Board from the head and solder it to the new head.
- (5) Perform steps (1) to (3) in reverse order.
- (6) Adjust as described in Section 4-11.



4-5. REPLACEMENT OF THE S DRAWER ROLLER

Replacement procedure:

- (1) Put the unit into the EJECT completion mode without a cassette tape.
- (2) Turn the pulley of the Gear Box by hand until the S Drawer Roller comes in front of the CTL PB Head.
- (3) Remove the S Drawer Roller from the shaft while pushing the spring holder in the direction of the arrow.
- (4) Smear a little Sony Grease in the notch at the bottom of the new S Drawer Roller.
- (5) While pushing the spring holder in the direction of the arrow, install the new S Drawer Roller onto the shaft until the S Drawer Roller locks to the shaft.
- (6) Adjust as described in Section 4-11.



4-6. REPLACEMENT / ADJUSTMENT OF THE TAPE GUIDES ON THE THREADING RING

. There are three tape guides on the Threading Ring. This section describes the replacement of the three tape guides and the width adjustment of the two tape guides.

Tool: slide vernier callipers of equivalent
L-shaped hexagonal wrench
(across flat has 1.27 mm)

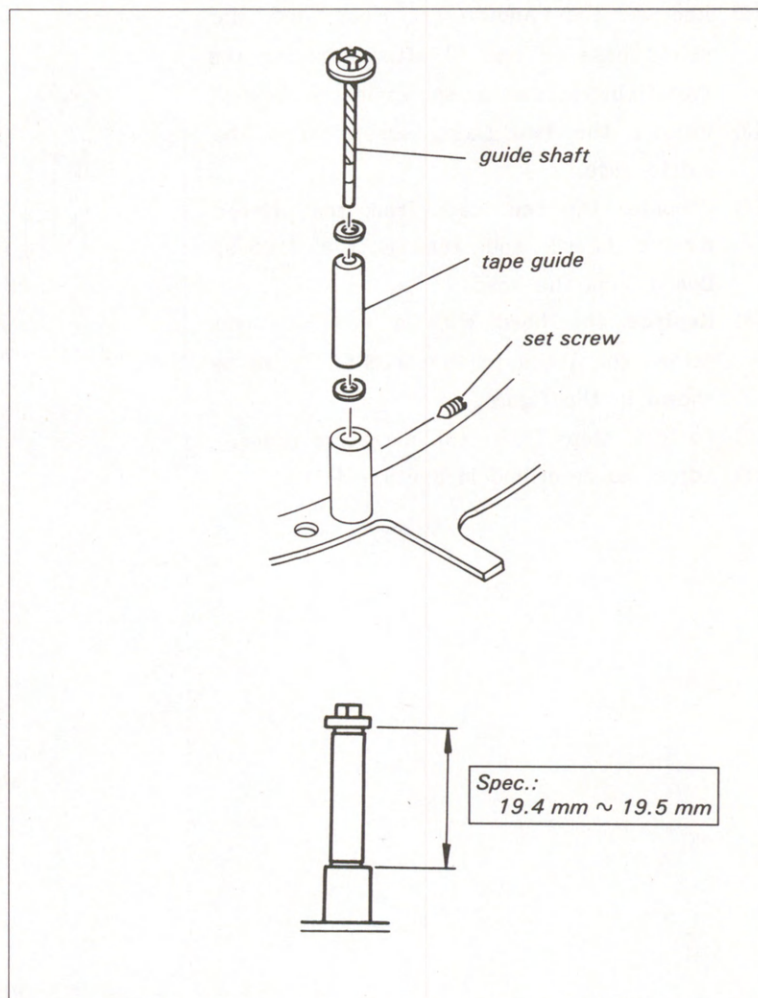
Mode: Put the unit into the FR-STOP mode
without a cassette tape.

Replacement procedure:

- (1) Loosen the set screw of the boss and remove the guide shaft.
- (2) Clean the guide shaft with a cloth moistened with cleaning fluid.
- (3) Assemble the guide.
- (4) Adjust the height of the sub-ring guide as shown in the figure.
- (5) Adjust as described in Section 4-11.

Adjustment procedure:

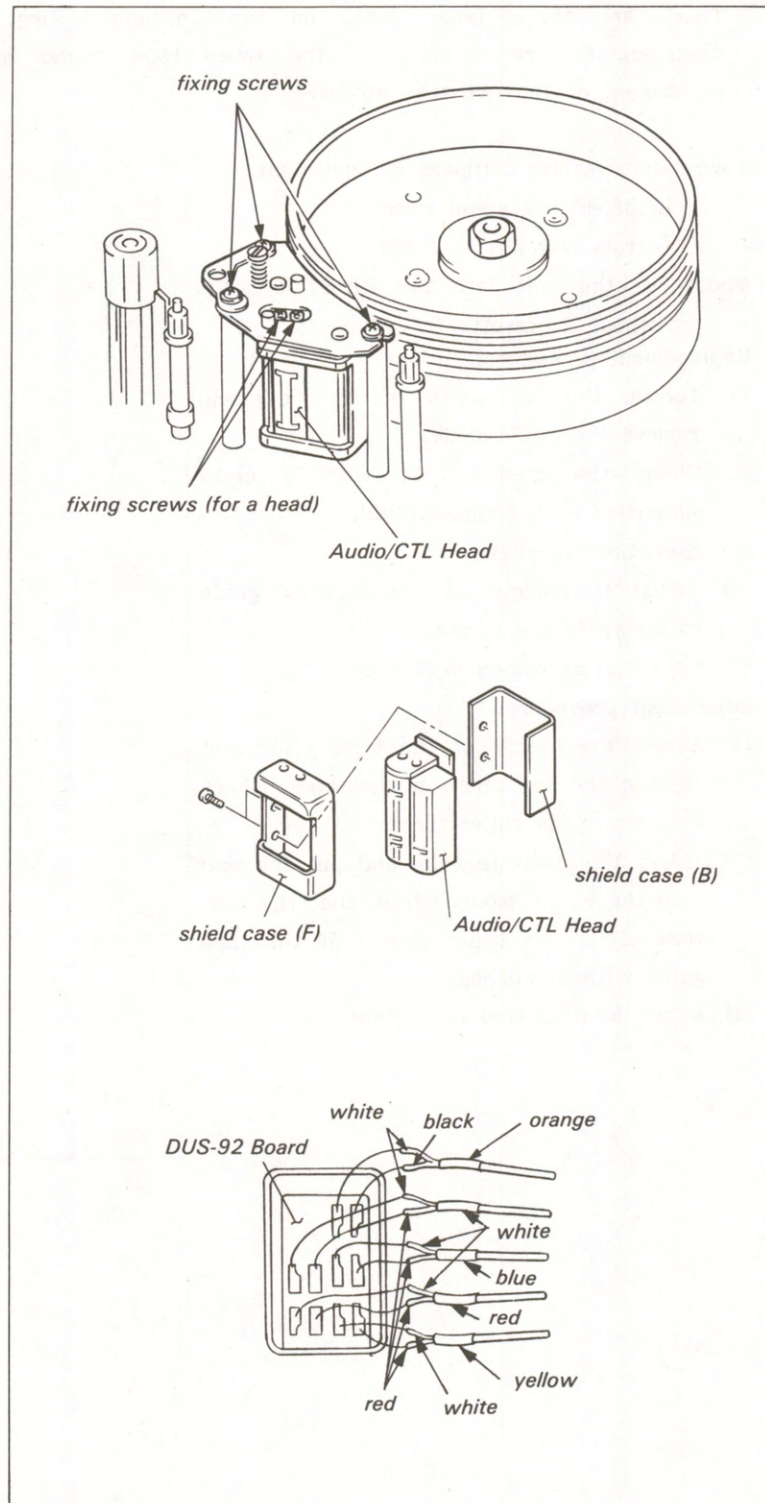
- (1) Adjust the height of the tape guide and tighten the set screw of the boss. Check that the guide roller turns smoothly.
- (2) Insert the cassette tape and put the unit into the PLAY mode. Check that the tape runs along the upper flange of the tape guide without curling.
- (3) Adjust as described in Section 4-11.



4-7. Replacement of the Audio/CTL Head

Replacement procedure:

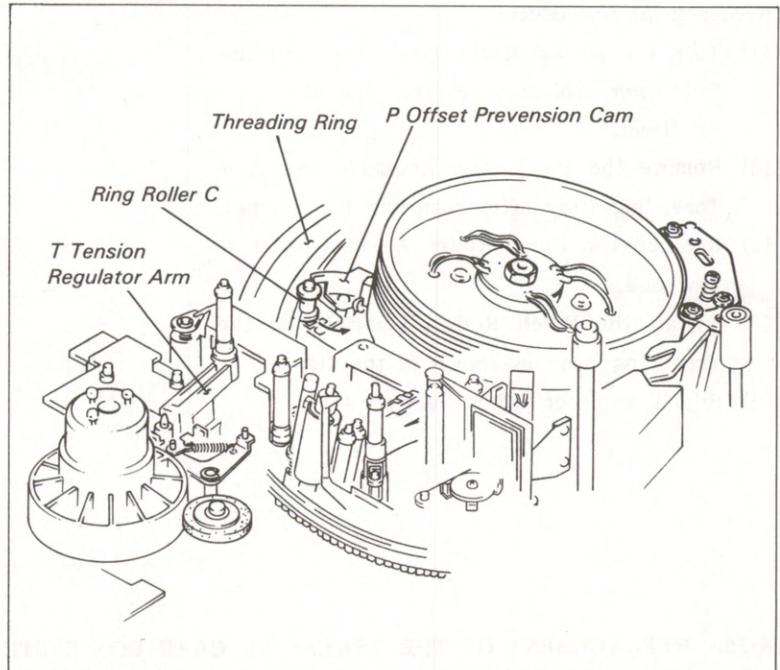
- (1) Remove the Audio/CTL Head Block from the unit after removing the three fixing screws as shown in the figure.
- (2) Remove the Audio/CTL Head and the shield case (F and B) after removing the two fixing screws as shown in the figure.
- (3) Remove the two fixing screws from the shield case.
- (4) Unsolder the ten leads from the printed circuit board and remove the DUS-92 Board from the head.
- (5) Replace the head with a new one and solder the leads to the DUS-92 Board as shown in the figure.
- (6) Perform steps (1) to (3) in reverse order.
- (7) Adjust as described in Section 4-11.



4-8. REPLACEMENT OF THE THREADING RING

Replacement procedure:

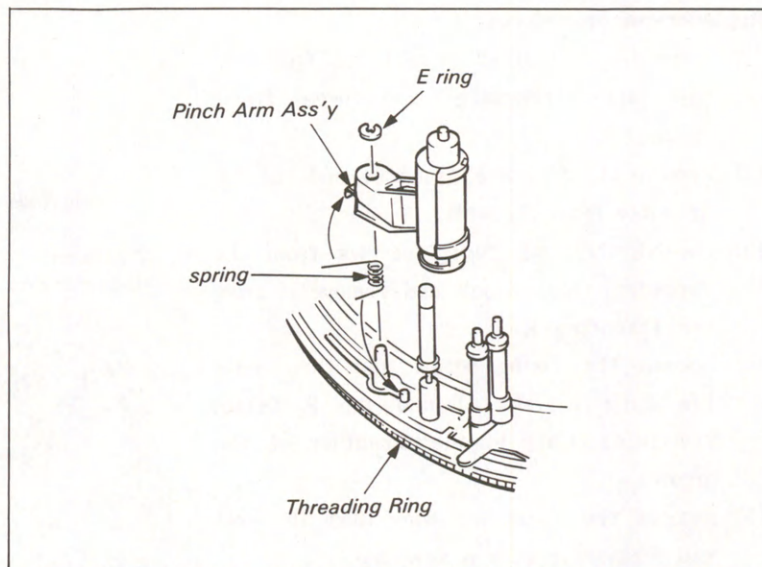
- (1) Remove the E Head Base Block from the unit after removing the three fixing screws.
- (2) Remove the S Guard Assembly and the FR Detector from the unit.
- (3) Loosen the two fixing screws from the Threading Gear Block and remove it from the Threading Ring.
- (4) Loosen the fixing screw and then move the Ring Roller (C) and the P Offset Prevention Cam in the direction of the arrow.
- (5) Remove the Threading Ring from the unit and replace it with a new one.
- (6) Perform steps (1) to (4) in reverse order.
- (7) Adjust as described in Section 4-11.



4-9. REPLACEMENT OF THE PINCH ROLLER

Replacement procedure:

- (1) Turn the pulley of the Gear Box until the S Drawer Roller is in front of the CTL PB Head.
- (2) Remove the Pinch Arm Assembly from the Threading Ring after removing the E ring.
- (3) Replace the Pinch Roller Assembly with a new one.
- (4) Install the Pinch Roller Assembly on the Threading Ring as shown in the figure.
- (5) Adjust as described in Section 4-11.

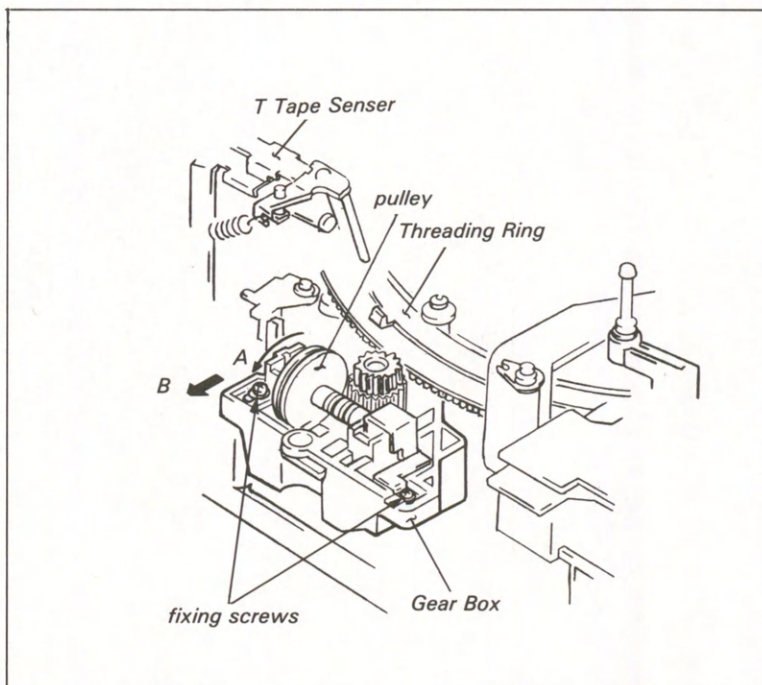


4-10. REPLACEMENT OF THE THREADING GEAR BOX SYSTEM

4-10-1. Replacement of the Threading Gear Box

Replacement procedure:

- (1) Put the unit into the EJECT mode and turn the power OFF.
- (2) Remove the T Tape Sensor from the gear box after removing the fixing screw.
- (3) Remove the two fixing screws of the gear box after turning the pulley 1 revolution in the direction of arrow A. Move the gear box in the direction of arrow B and remove it from the unit.
- (4) Remove the harness from the clamber and disconnect CN511 from the SY-141 Board.
- (5) Replace the gear box with a new one.
- (6) Perform steps (3) and (4) in reverse order.
- (7) Put the gear box on the chassis and thread the two fixing screws snugly but do not tighten them. Tighten the two fixing screws of the gear box after meshing the Threading Ring to the gear.
- (8) Adjust as described in Section 4-11.

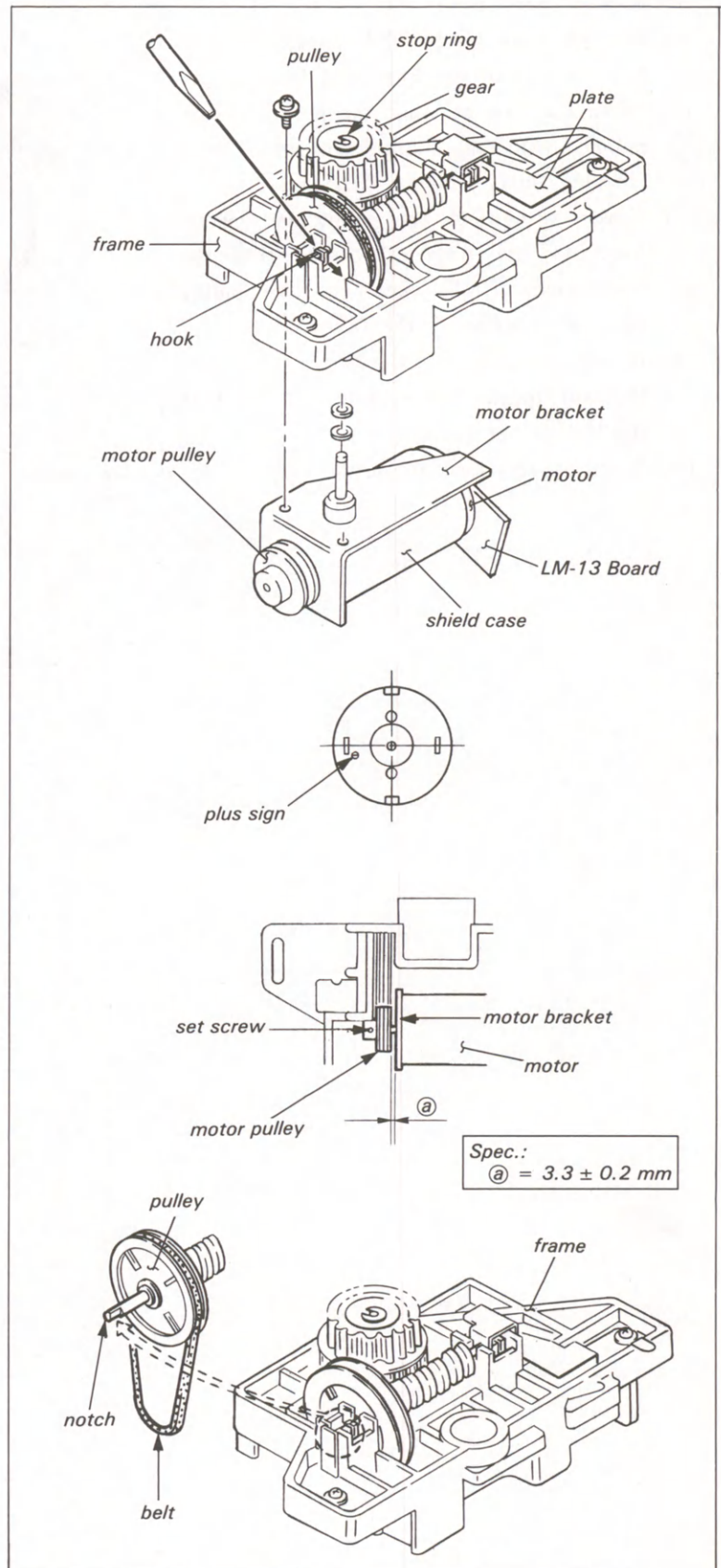


4-10-2. Replacement of the Threading Motor

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Replacement procedure:

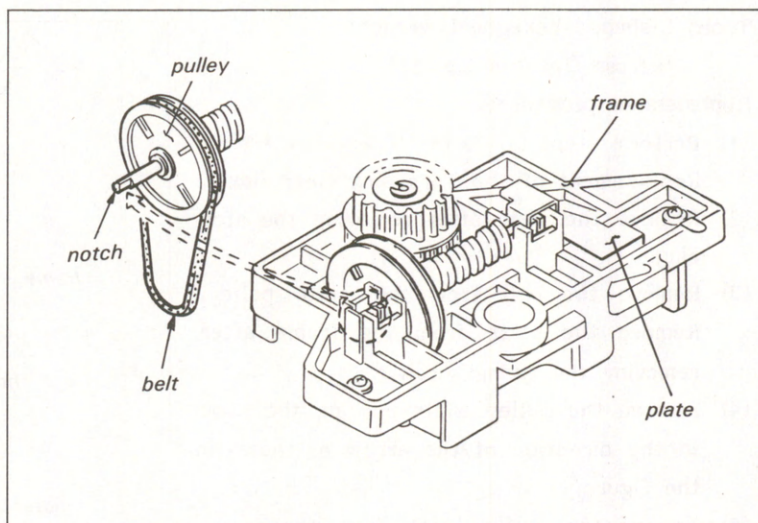
- (1) Perform steps (1) to (4) of Section 4-10-1, Replacement of the Threading Gear Box.
- (2) Remove the gear after removing the stop ring.
- (3) Remove the belt from the motor pulley. Remove the plate from the frame after removing the fixing screw.
- (4) Remove the pulley while pushing the hook in the direction of the arrow as shown in the figure.
- (5) Remove the motor block from the frame after removing the two fixing screws.
- (6) Loosen the set screw and remove the motor pulley.
- (7) Remove the motor from the motor bracket after removing the two fixing screws.
- (8) Remove the shield case and unsolder the LM-13 Board. Replace the motor with a new one.
- (9) The pole of the motor is as shown in the figure. Solder the plus terminal of the motor to the plus pad of the LM-13 Board.
- (10) Install the shield case to the motor.
- (11) Install the motor to the frame as shown in the figure. Perform steps (4) to (6) in reverse order. Check that the clearance between the motor pulley and the bracket meets the required specification.
- (12) Hook the belt to the pulley and install the pulley on the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.
- (13) Hook the belt to the motor pulley. Check that the belt is not twisted.
- (14) Check as described in Section 4-11.



4-10-3. Replacement of the Threading Belt

Replacement procedure:

- (1) Perform steps (1) to (3) in Section 4-10-2, Replacement of the Threading Motor.
- (2) Clean the new belt and the groove of the pulley with a cloth moistened with cleaning fluid.
- (3) Hook the belt to the pulley and install them to the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.
- (4) Install the plate to the frame and hook the belt to the Motor pulley. Check that the belt is not twisted.
- (5) Check as described in Section 4-11.



4-11. ITEMS TO BE ADJUSTED AFTER MAIN PARTS REPLACEMENT

(Numbers in parenthesis refer to Section Nos.)

Replacement of Threading Ring

Threading Ring Rotation Adjustment (5-3-1) —————> Gear Box Position Adjustment (5-3-2) —————>
FR Detector Block Mounting Position Adjustment (5-3-4) —————> Pinch Roller Position
Adjustment (5-3-3) —————> Pinch Lever Azimuth Adjustment (5-10) —————> Pinch Lever Pre-set
Adjustment (5-4-1) —————> Pinch Roller Pre-set Adjustment (5-4-2) —————> Leaf Spring Position
Adjustment (5-9) —————> F FWD/REW Modes Tape Path Adjustment (7-1) —————> T Correction
Guide Slantness Adjustment (7-2) —————> Tape Path Adjustment Around Pinch Roller (7-7) —————>
PLAY Mode Tape Path Adjustment (1) (7-4) —————> PLAY Mode Tape Path Adjustment (2) (7-5) —————>
REV Mode Tape Path Adjustment (7-6) —————> Video Tracking Adjustment (7-8-1) —————>
Time Code Head Adjustment (7-3) —————> CTL PB Head Height/Azimuth/Zenith Adjustments (7-8-3)
—————> Audio/CTL Head Position Adjustment (7-8-8) —————> Time Code Head Position Adjustment
(7-8-10) —————> Video Tracking Adjustment (check) (7-8-1)

Replacement of Pinch Roller

Pinch Roller Self Alignment Adjustment (5-3-3) —————> Pinch Roller Pre-set Adjustment (5-4-2)
—————> PLAY Mode Tape Path Adjustment (2) (7-5) —————> REV Mode Tape Path Adjustment (7-6)
—————> Tape Path Adjustment Around Pinch Roller (7-7) —————> Video Tracking Adjustment
(check)(7-8-1)

Replacement of Take-up Reel Table

Reel Table Height and Vertical Play Adjustment (5-1-2) —————> T Brake Torque Adjustment
(6-1-2) —————> REW Brake Torque Adjustment (6-1-3) —————> F FWD/REW Torque Adjustment (6-2)
FWD Torque Adjustment (6-3) —————> F FWD/REW Modes Tape Path Adjustment (7-1)

Replacement of Supply Reel Table

Reel Table Height and Vertical Play Adjustment (5-1-2) —————> S Brake Torque Adjustment
(6-1-1) —————> F FWD/REW Torque Adjustment (6-2) —————> REV Torque Adjustment (6-4) —————> FF
Back Tension Adjustment (6-5) —————> FWD Back Tension Adjustment (6-6) —————> Video Tracking
Adjustment (check) (7-8-1)

Replacement of Brake Band

FF Back Tension Adjustment (6-5) —————> FWD Back Tension Adjustment (6-6)

Replacement of Capstan Motor

Pinch Lever Right Angle Adjustment (5-10) —————> Pinch Roller Self Alignment Adjustment
(5-3-3) —————> Capstan Search Speed Adjustment —————> Capstan FWD/REV Detector Adjustment
—————> Capstan Free Speed Adjustment —————> Capstan Stop Servo Adjustment —————> PLAY Mode
Tape Path Adjustment (2) (7-5) —————> REV Mode Tape Path Adjustment (7-6) —————> Tape Path
Adjustment Around Pinch Roller (7-7) —————> Video Tracking Adjustment (check)(7-8-1)

Replacement of Threading Motor

Gear Box Position Adjustment (5-3-2)

Replacement of Reel Motor

FWD Torque Adjustment (6-3) —→ REV Torque Adjustment (6-4)

Replacement of CTL PB Head

CTL PB Head Height/AZimuth/Zenith Adjustments (7-8-3) —→ Video Tracking Adjustment (check) (7-8-1)

Replacement of Audio/CTL Head

Audio Head Height Adjustment (7-8-4) —→ Audio Head Azimuth Adjustment (7-8-6) —→ Video Tracking Adjustment (7-8-1) —→ Audio Head Height Adjustment (7-8-4) —→ Audio Head Azimuth Adjustment (7-8-6) —→ Audio Head Phase Adjustment (7-8-7) —→ Audio/CTL Head Position Adjustment (7-8-8) —→ Time Code Head Position Adjustment (7-8-10) —→ Audio System Alignment (all of Section 10)

Replacement of Drum Assembly

Tracking Adjustment (7-8) —→ F FWD/REW Modes Tape Path Adjustment (7-1) —→ PLAY Mode Tape Path Adjustment (2) (7-5) —→ REV Mode Tape Path Adjustment (7-6) —→ Video Head Dihedral Adjustment (7-9) —→ Drum AFC Level Adjustment —→ Drum AFC Transient Adjustment —→ Switching Position Adjustment

Replacement of Upper Drum Assembly

Replacement of Upper Drum (4-1) —→ Tracking Adjustment (7-8) —→ F FWD/REW Modes Tape Path Adjustment (7-1) —→ PLAY Mode Tape Path Adjustment (2) (7-5) —→ REV Mode Tape Path Adjustment (7-6) —→ Video Head Dihedral Adjustment (7-9) —→ PB RF Amplifier Adjustment

SECTION 5

LINK AND DRIVE SYSTEM ALIGNMENT

5-1. REEL TABLE SYSTEM ADJUSTMENT

5-1-1. Cassette Holder Position Adjustment

Tool: Reel table height check base jig
Thickness gauge
L-shaped hexagonal wrench
(across flat has 1.27 mm)

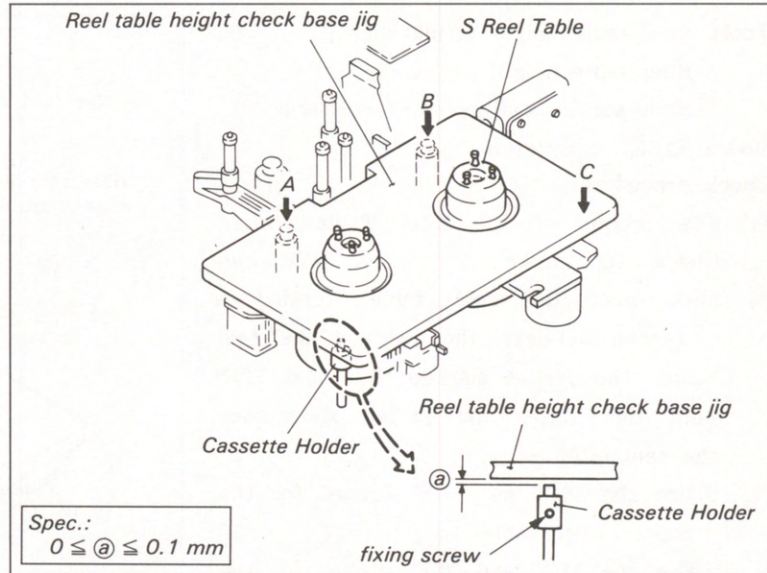
Mode: EJECT completion

Check procedure:

- (1) While lightly pushing the Reel Table Height Check Base Jig marked (A), (B) and (C) toward the chassis, check that the clearance between the base jig and the cassette holder meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Cassette Holder to meet the required specification.



5-1-2. Reel Table Height and Vertical Play Adjustment

. The height of the reel table is the reference for the tape threading system and the tape path system. This Adjustment should be performed very carefully.

Tool: Reel table height check base jig
Reel table height check jig
Slide vernier callipers or equivalent

Mode: EJECT completion

Check procedure:

- (1) The probes of the Reel Table Height Check Jig marked "SO" and "TO" can slide over the reel table, leaving a clearance between the jig and the reel table. The probes marked "SX" and "TX" meet the flange and cannot slide over the reel table.
 - . Use the "SO" and "SX" probes for the Supply Reel Table.
 - . Use the "TO" and "TX" probes for the Take-up Reel Table.
- (2) After tighten the fixing screw of the top of the reel table, push up and press down the reel table. Check that the vertical play meets the required specification.

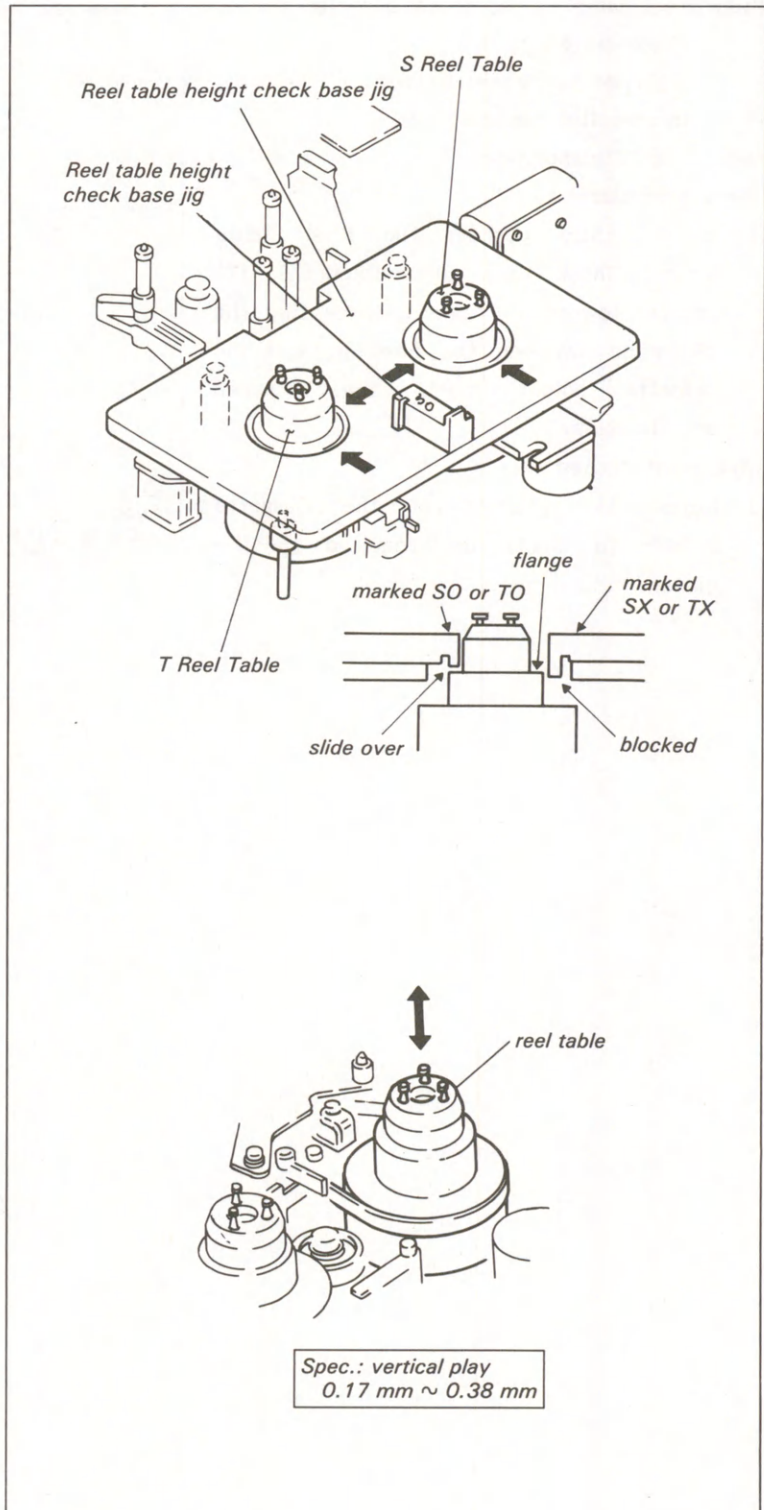
Adjustment procedure:

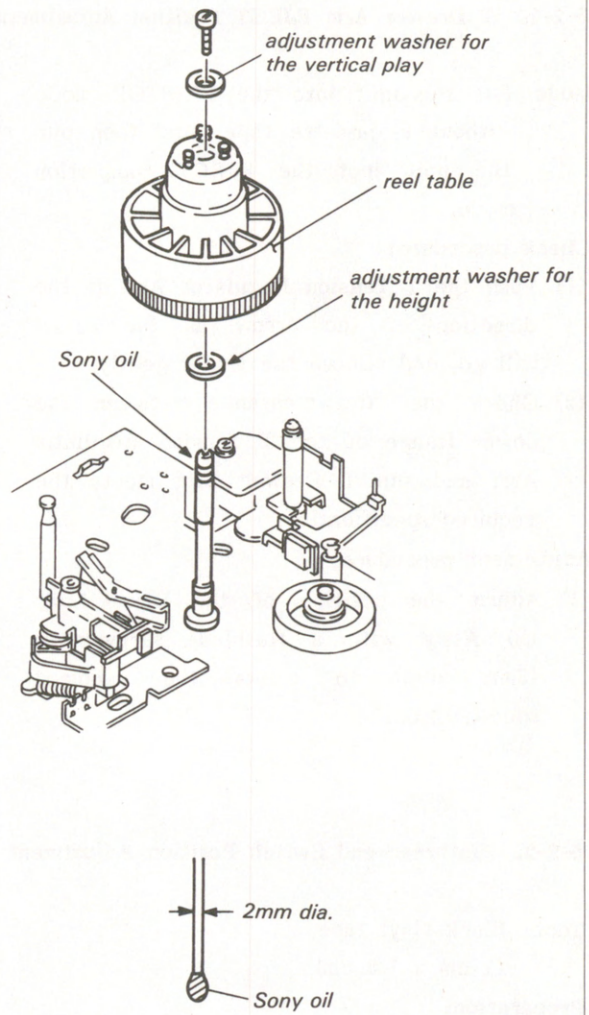
- (1) Place the washer under the reel table and adjust the height of the reel table.
- (2) Place the washer on the reel table and adjust the vertical play of the reel table.

NOTE :When the reel table is removed and its height is adjusted with a washer, drop a drop of Sony oil on the reel shaft. (A drop of Sony oil is the amount that is scooped by a 2 mm dia. twing as shown in the figure.)

. Adjustment poly-slider washer:

3-645-567-11	6 mm dia.	0.05 mm thick
3-701-444-01	6 mm dia.	0.13 mm thick
3-701-444-11	6 mm dia.	0.25 mm thick
3-701-444-21	6 mm dia.	0.5 mm thick





5-2. T DRAWER ARM ADJUSTMENT

5-2-1. T Drawer Arm EJECT Position Adjustment

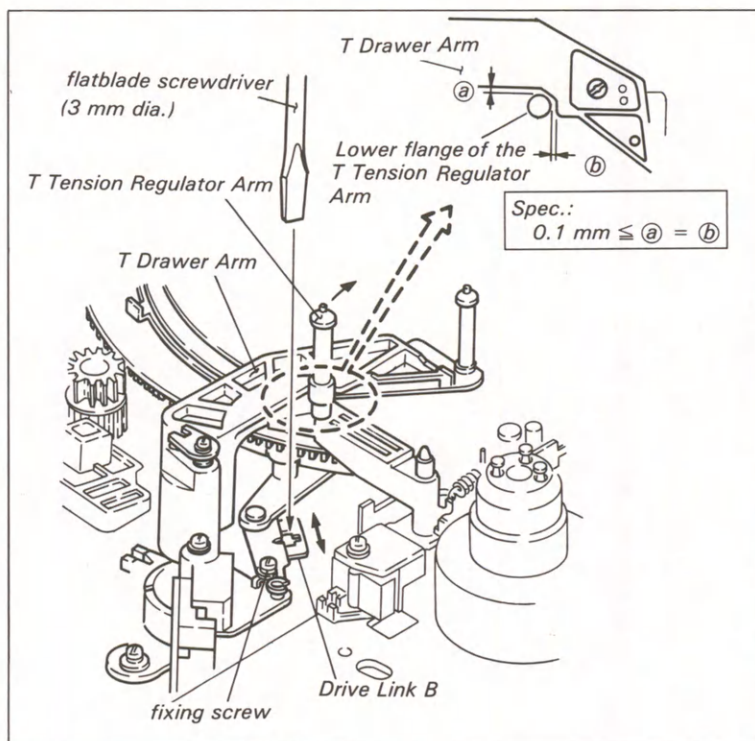
Mode: Put the unit into the FR-STOP mode without a cassette tape. And then put the unit into the EJECT completion mode.

Check procedure:

- (1) Push the T Tension Regulator Arm in the direction of the arrow as far as it will go, and remove the finger gently.
- (2) Check that the clearance between the lower flange of the T Tension Regulator Arm and the T Drawer Arm meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Drive Link (B) Ass'y with a flatblade screwdriver (3mm dia.) to meet the required specification.



5-2-2. Unthread-end Switch Position Adjustment

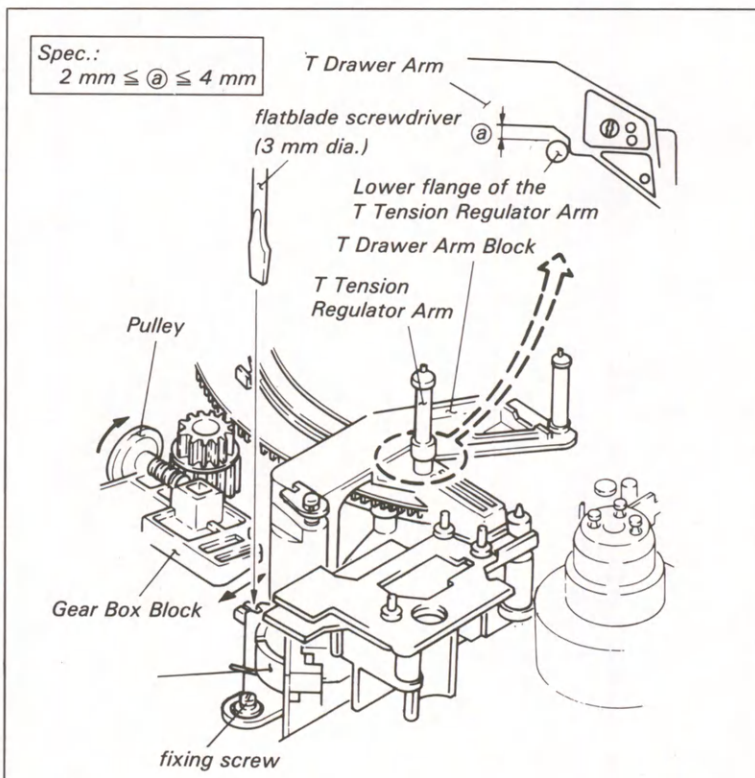
Tool: Black vinyl tape
(1 cm x 1.5 cm)

Preparation:

- (1) Put the unit into the FR-STOP mode and turn the power OFF.
- (2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.
- (3) Remove the FR Detector Block and cover the D2 photointerrupter (FR-UNTHREAD END Detector) with the black vinyl tape. (The FR Detector is put into the FR-STOP mode.)

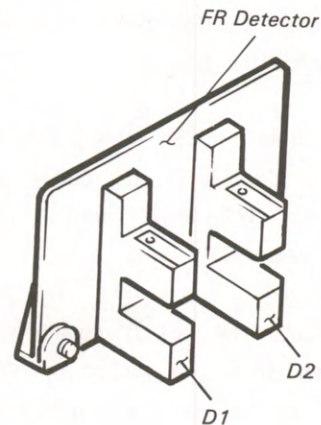
Check procedure:

- (1) Turn the power ON and rotate the pulley of Gear Box Block in the clockwise direction by hand.
- (2) When the T Brake Solenoid is energized (click sound heard), check that the positional relationship of the T Drawer Arm and the T Tension Regulator Arm meet the specification as shown in the figure.



Adjustment procedure:

- (1) Adjust the position of the Photointerrupter Holder with a flatblade screwdriver (3mm dia.) to meet the required specification.
- (2) Turn the power OFF and install FR Detector Block after peeling off the black vinyl tape.
- (3) Perform Section 5-3-4, FR Detector Installing Position Adjustment.
- (4) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.



5-3. THREADING SYSTEM ADJUSTMENT

5-3-1. Threading Ring Rotation Adjustment

- . This adjustment is required only when the Threading Ring is replaced or removed.
- . If the Threading Ring is adjusted to have a narrower clearance, the ring rotation becomes sluggish. If adjusted to have a wider clearance, tape run during threading, FWD, and REV modes will be unstable.

Mode: Check mode: EJECT completion/
Threading/Unthreading
Adjustment mode: EJECT completion

Check procedure:

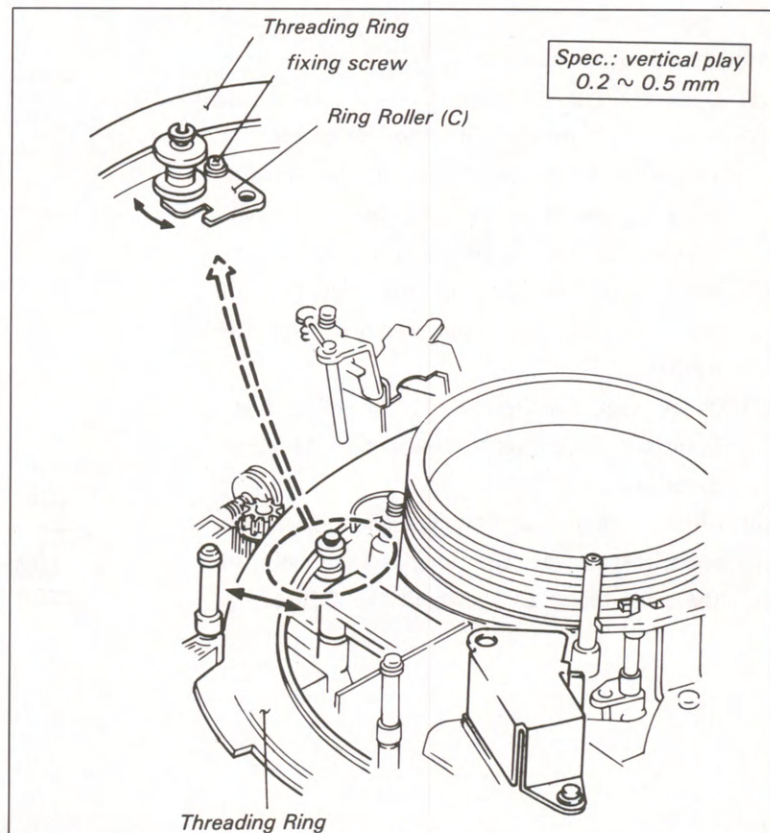
- (1) Put the unit into the EJECT completion mode. Check that the horizontal play meets the required specification when the Threading Ring is pushed in the direction of the arrow.
- (2) Check that the rotation of the Threading Ring during the Threading and Unthreading modes is smooth.

Adjustment procedure:

- (1) Put the unit into the EJECT completion mode.
- (2) Adjust the position of the Ring Roller (C) to meet the required specification.

Reference:

- . Insert a 0.3 mm thick piece of paper between the Threading Ring and the Ring Roller (C).
- . Three pages of this service manual are 0.3 mm thick.



5-3-2. Gear Box Installing Position Adjustment

. It is required that Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Put the unit into the EJECT completion mode. Turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

Check procedure:

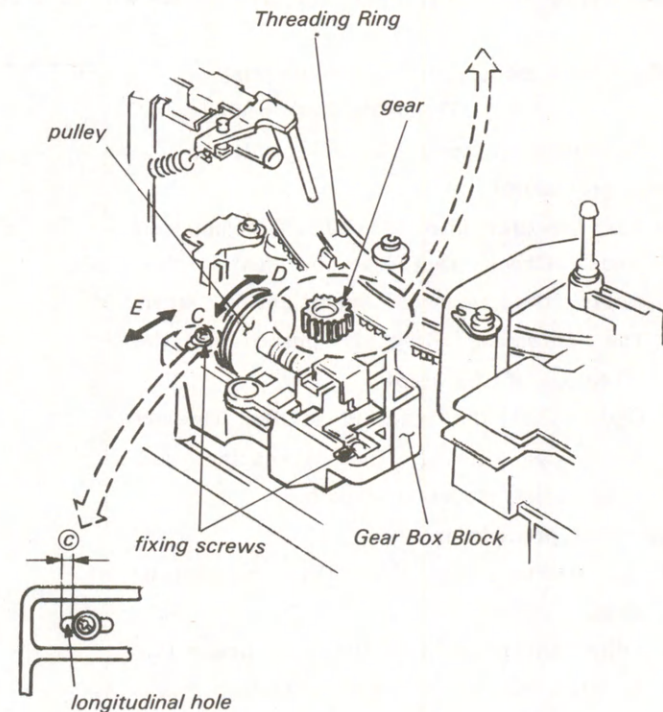
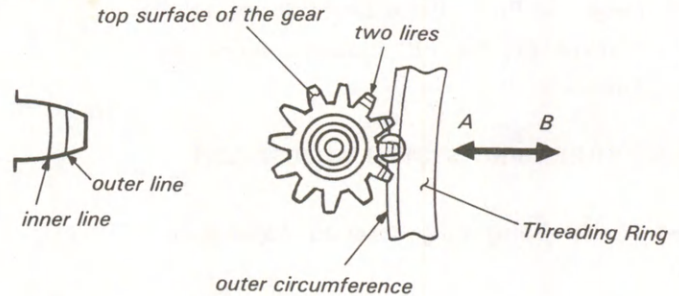
- (1) Put the unit into the EJECT completion mode and then turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.
- (2) Mark two lines on the top surface of the gear with a black felt tip pen. (Two lines are easy to see during the adjustment.)
- (3) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.
- (4) Check that the relationship between the outer circumference of the Threading Ring and the Gear meets the required specification.

Adjustment procedure:

- (1) Open the DM-69 Board.
- (2) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.
- (3) Move the Gear Box in the direction of arrow E to meet the required specification.
- (4) Check that Section 5-3-1, Threading Ring Rotation Adjustment meets the required specification.
- (5) Check that © meets the required specification at the longitudinal hole of the gear block as shown in the figure.

Spec.:

(1) When pushing the Threading Ring in the direction of arrow A or B, the outer circumference of the Threading Ring is between two lines of the gear.



Spec.:

$0.1 \text{ mm} \leq \text{©} \leq 1.5 \text{ mm}$

5-3-3. Pinch Roller Self Alignment Adjustment

. If this adjustment is incorrect, the position and the slantness of the Pinch Roller will not be correct when the Pinch Roller is pressed against the Capstan Shaft. Incorrect adjustment will cause a tape to be damaged.

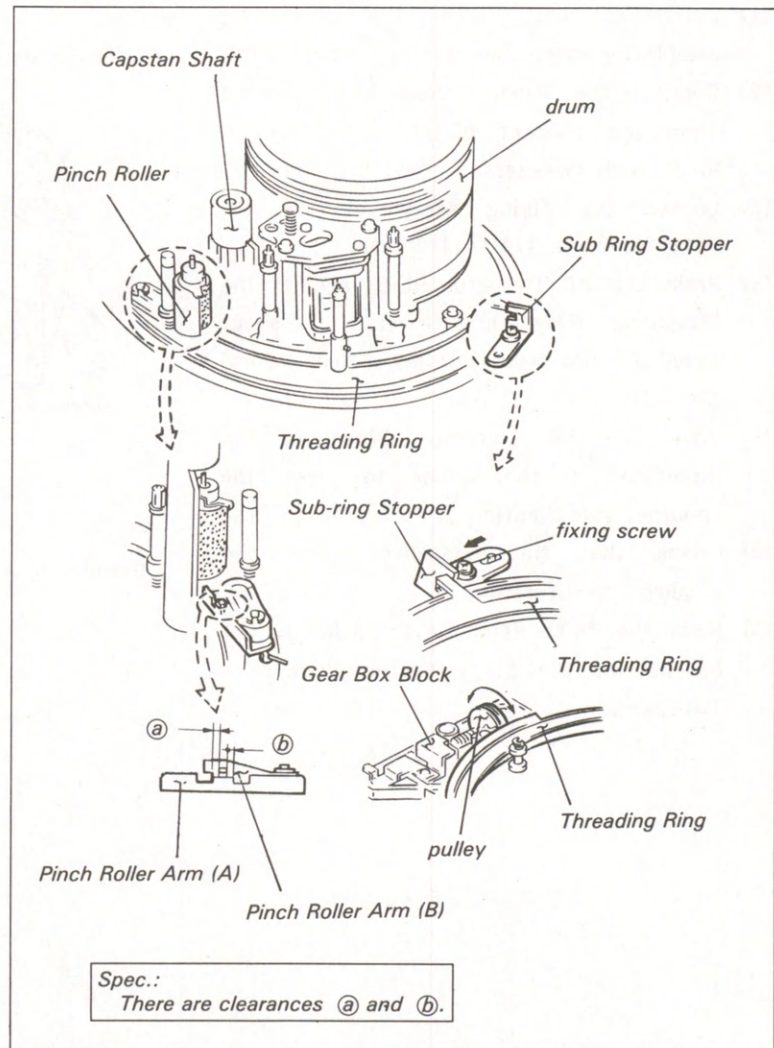
Mode: PLAY mode without a cassette tape

Check procedure:

- (1) Put the unit into the PLAY mode without a cassette tape.
- (2) Check that the relationship of Pinch Roller Arm (A) and Pinch Roller Arm (B) meets the required specification.

Adjustment procedure:

- (1) Put the unit into the PLAY mode without a cassette tape.
- (2) Loosen the fixing screw in the Sub-ring Stopper.
- (3) Turn the pulley of the Gear Box Block in the direction of the arrow to meet the required specification.
- (4) Push the Sub-ring Stopper gently in the direction of the arrow and tighten the fixing screw.
- (5) Put the unit into the EJECT completion mode and then perform the check procedure.



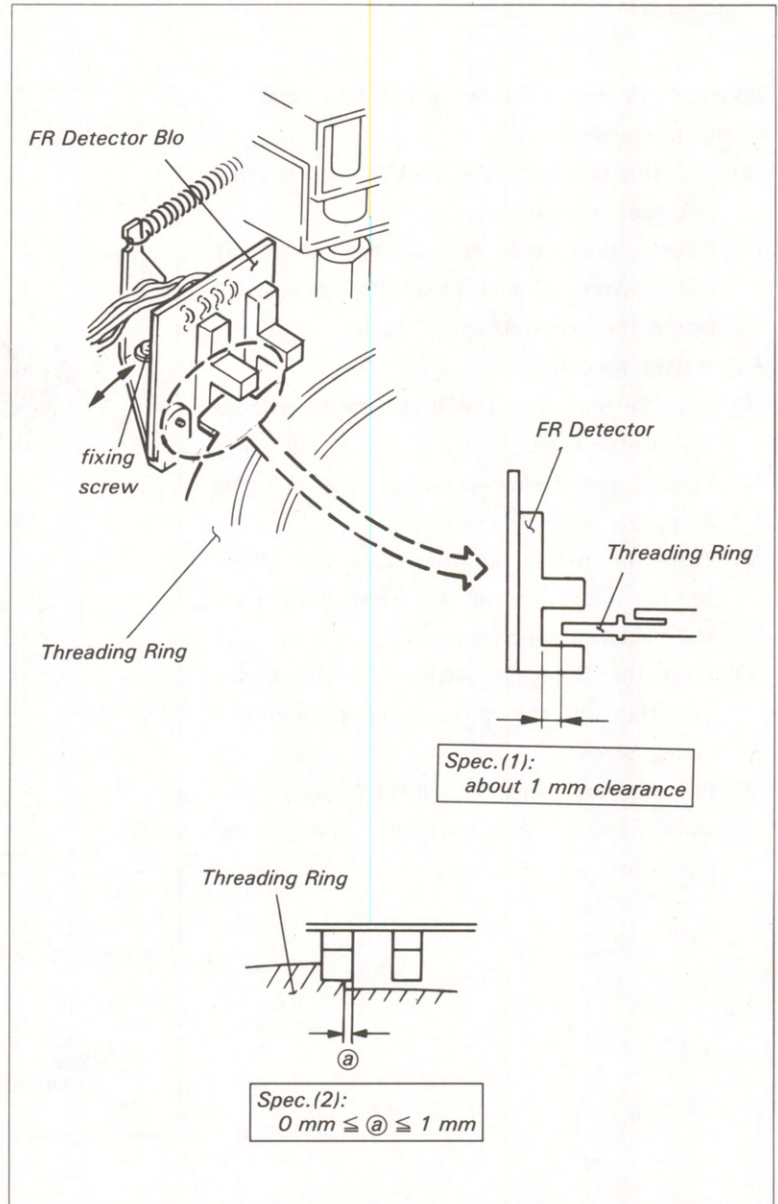
5-3-4. FR Detector Block Installing Position Adjustment

. It is required that the Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Threading completion mode

Adjustment procedure:

- (1) Put the unit into the Threading completion mode and turn the power OFF.
- (2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.
- (3) Loosen the fixing screw of the FR Detector block 1/4 to 1/2 turn.
- (4) Press the FR Detector Block against the Threading Ring, and reverse it about 1mm. (Do not reverse it more than 1.5mm) (Spec.1)
- (5) Move the FR Detector Block in the direction of the arrow to meet the required specification 2.
- (6) Check that the clearance meets the required specification 1.
- (7) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.



5-4. PINCH LEVER BLOCK ADJUSTMENT

5-4-1. Pinch Lever Preset Adjustment

- It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

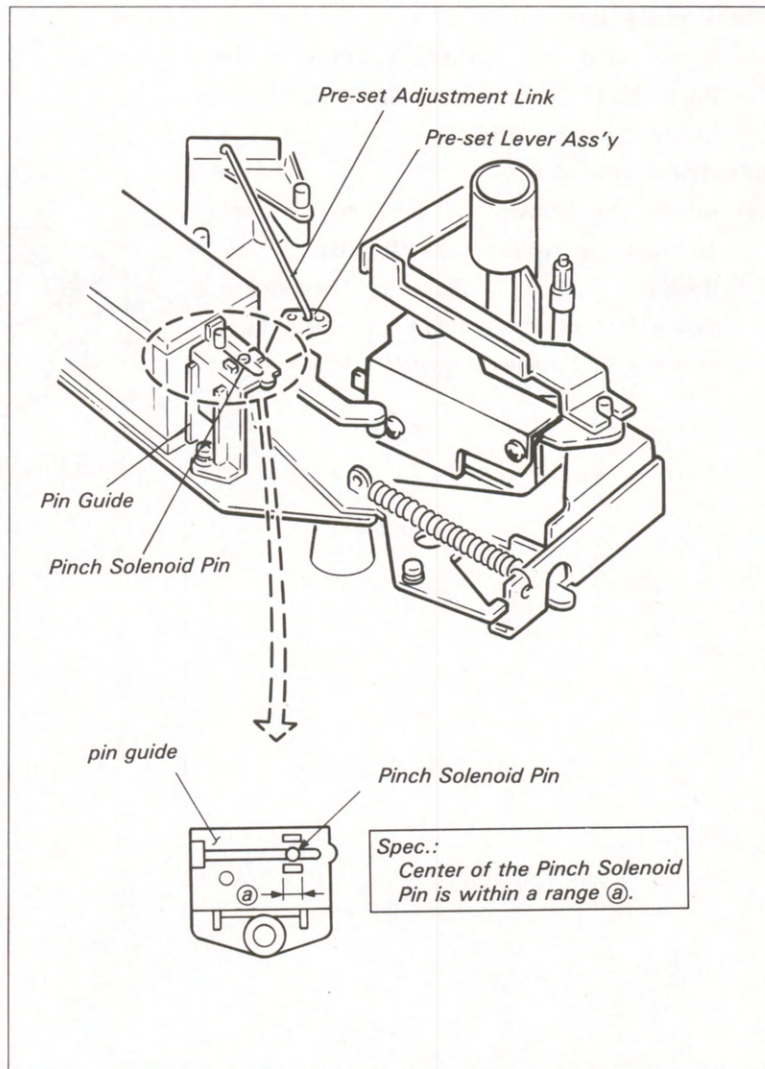
Mode: Turn the power OFF in the PLAY mode

Check procedure:

- (1) Open the RP-40 Board.
- (2) Put the unit into the PLAY mode and turn the power OFF. Check that the position of the Pinch Solenoid Pin meets the required specification.
- (3) Turn the power ON and press the PLAY button. After unthreading is complete, check as described in step (1).

Adjustment procedure:

- (1) Adjust the position of the Pinch Solenoid to meet the required specification, referring to Section 5-7-4, Pinch Solenoid Installing Position Adjustment.
- (2) If the specification in Step (1) cannot be obtained, adjust the position of the Sub-ring Stopper to meet the required specification, referring to Section 5-3-3, Pinch Roller Self Alignment Adjustment.
- (3) If the specification in Steps (1) and (2) cannot be obtained, insert the Pinch Lever Preset Adjustment Link into the appropriate hole of the Preset Lever Ass'y to meet the required specification. Perform Steps (1) and (2) again.



5-4-2. Pinch Roller Preset Adjustment

It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Tool: Thickness gauge

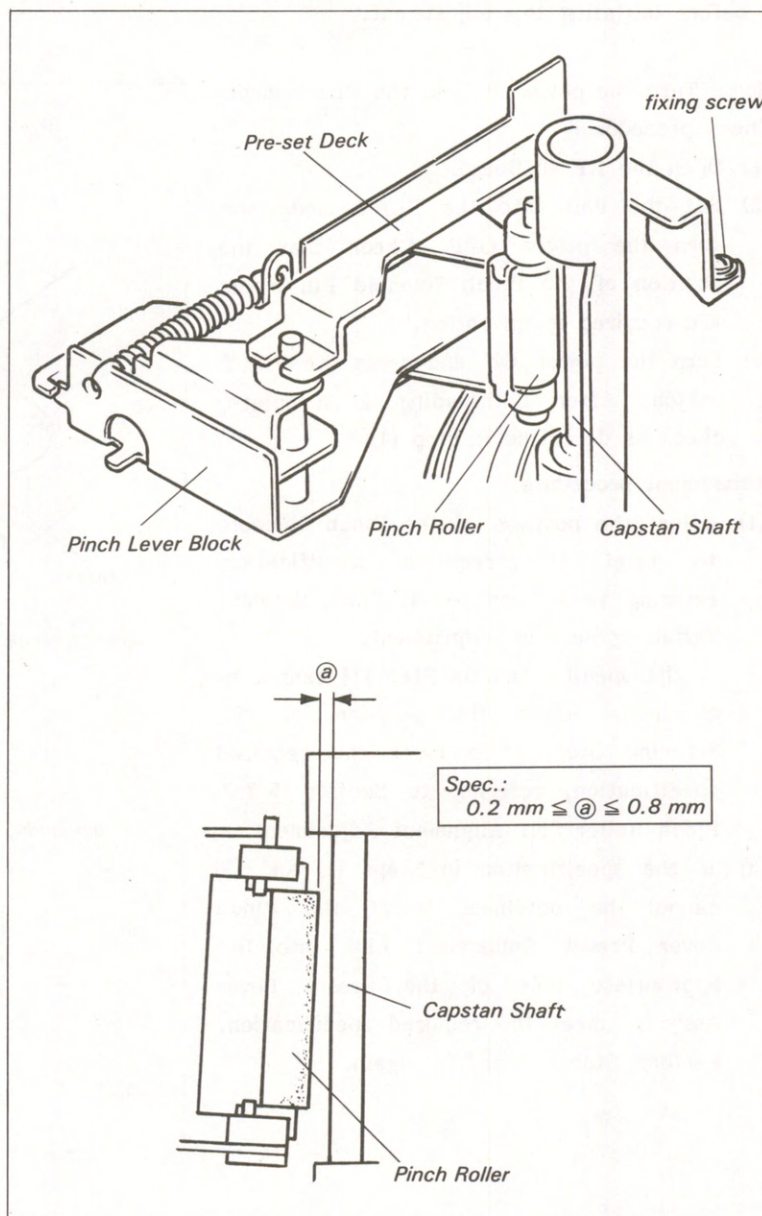
Mode: PLAY mode

Check procedure:

- (1) Check that the clearance between the Pinch Roller and Capstan Shaft meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the Pre-set Deck to meet the required specification.
- (2) Repeat the Threading/Unthreading modes two or three times and check that it meet the required specification.



5-4-3. Pinch Solenoid Block Position Adjustment

Tool: Thickness gauge

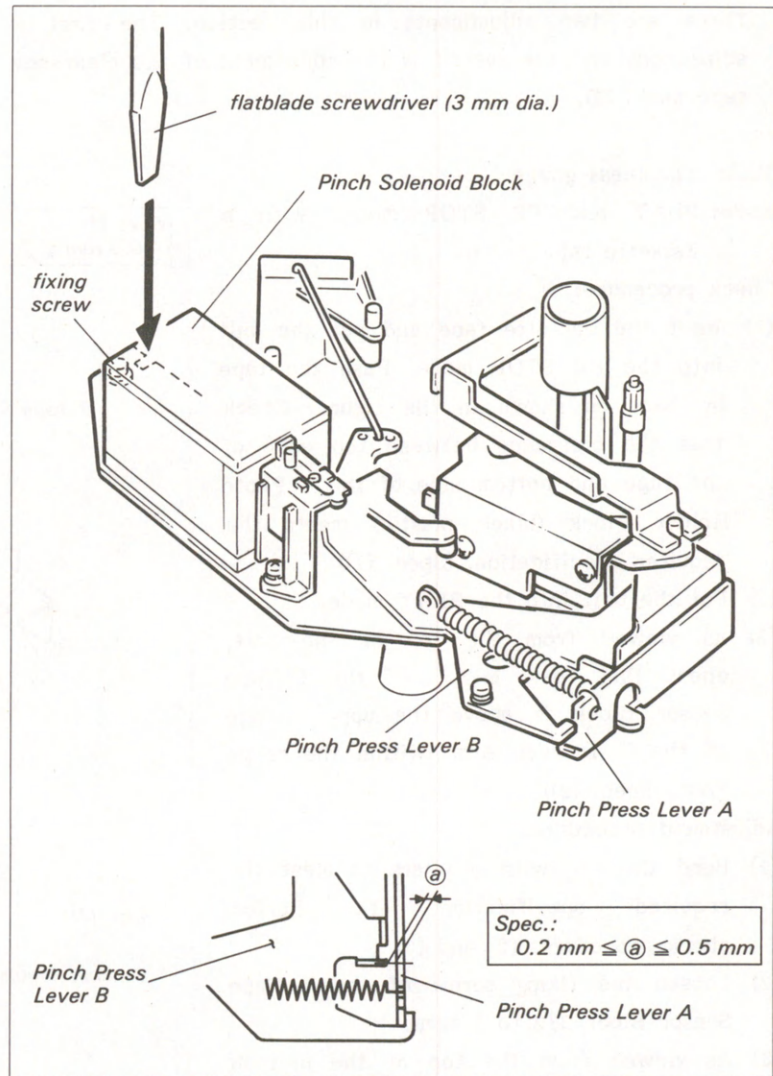
Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a cassette tape and put the unit into the PLAY mode.
- (2) Check that the clearance between Pinch Press Lever A and B meets the required specification.
- (3) Repeat the Unthreading/Threading modes two or three times and check as described in step (2).

Adjustment procedure:

- (1) Put the unit into the PLAY mode. Adjust the position of the Pinch Solenoid Block with a flatblade screwdriver (3 mm dia.) to meet the required specification.
- (2) Perform the check procedures (2) and (3).



5-5. T TAPE SENSOR POSITION ADJUSTMENT

. There are two adjustments in this section. The first is the height adjustment and the second is the adjustment of the clearance between the tape and LED.

Tool: Thickness gauge

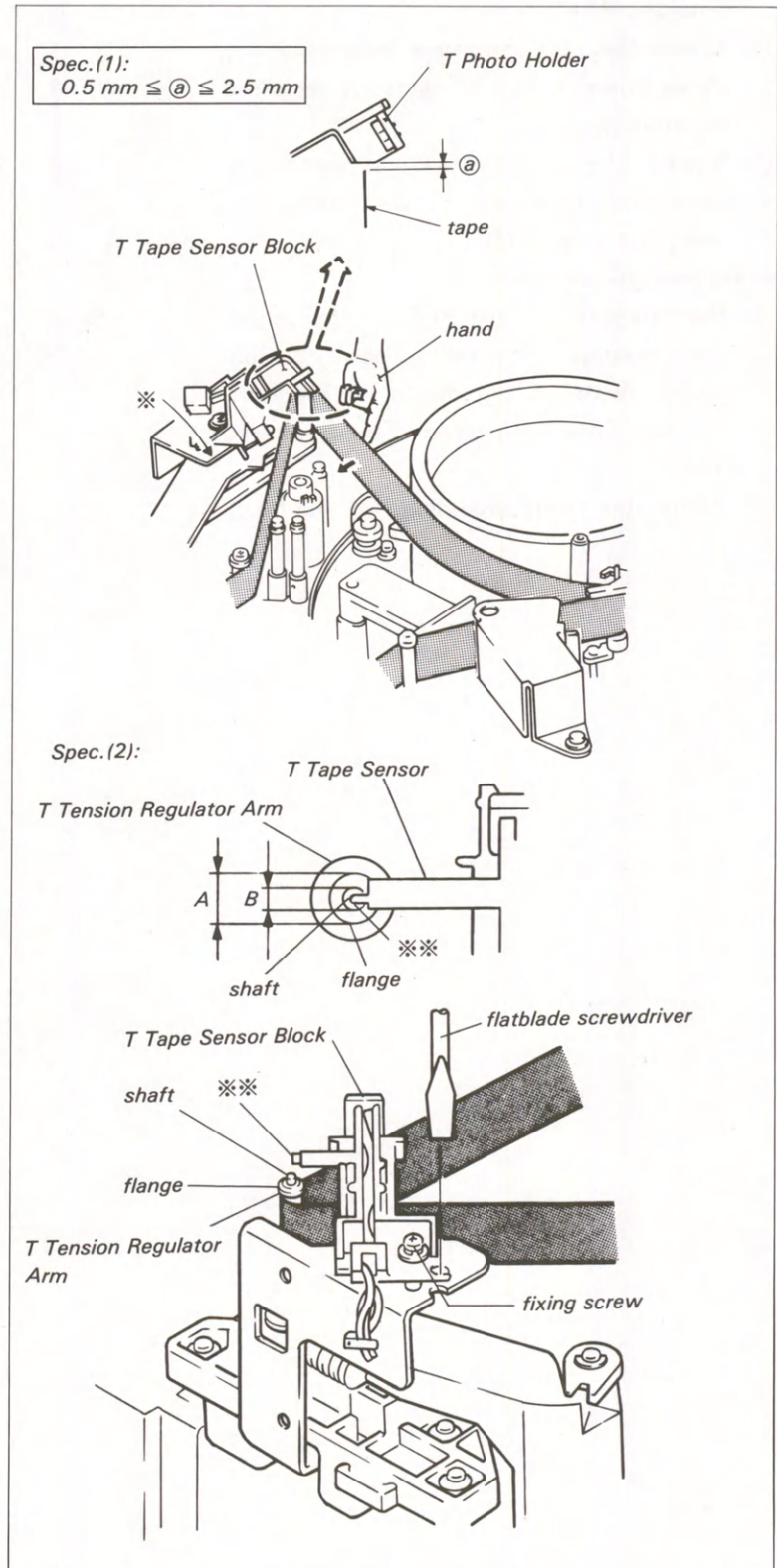
Mode: PLAY and FR STOP modes with a cassette tape

Check procedure:

- (1) Inset the cassette tape and put the unit into the FR STOP mode. Push the tape by hand as shown in the figure. Check that the clearance between top edge of the tape and bottom side of the T Photo Holder Block (black plastic) meets the required specification. (Spec. (1))
- (2) Put the unit into the PLAY mode.
- (3) As viewed from the top of the unit, check that the ※※ of the T Tape Sensor Block is above the upper flange of the T Drawer Arm (within the range "A"). (Spec. (2))

Adjustment procedure:

- (1) Bend the ※ with a pliers to meet the required specification (1). Perform check procedures (2) and (3).
- (2) Loosen the fixing screw of the T Tape Sensor Block 1/2 to 1 turn.
- (3) As viewed from the top of the unit in the PLAY mode, adjust the position of the T Tape Sensor Block with a flatblade screwdriver so that the ※※ of the T Tape Sensor Block is above the shaft of the T Drawer Arm (within the range "B").
- (4) Check that it meets the required specification (1).



5-6. TENSION ARM SYSTEM ADJUSTMENT

5-6-1. S Drawer Roller Block Limiter Adjustment

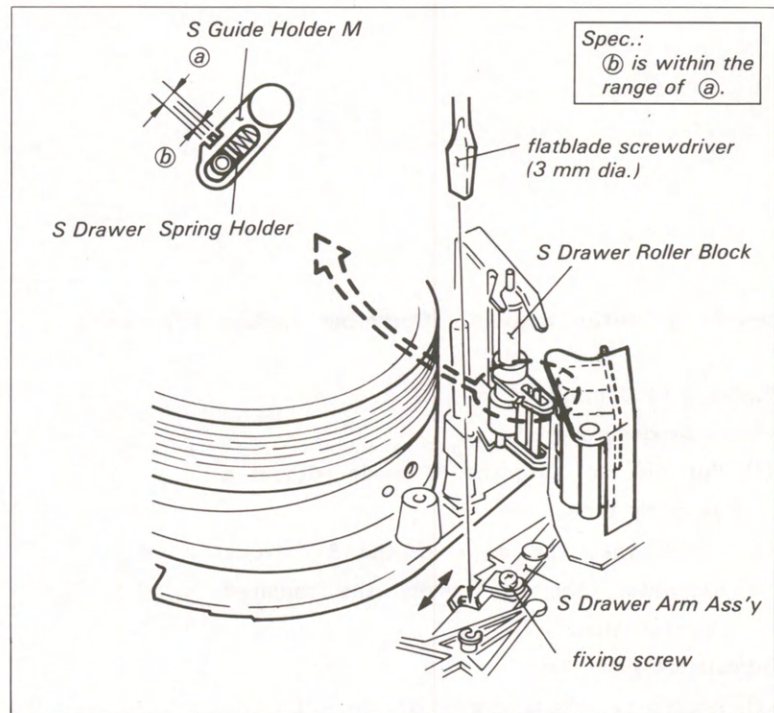
Mode: FR-STOP mode

Check procedure:

- (1) Check that " b " of the S Drawer Spring Holder in the S Drawer Roller Block fits into notch " a " of the S Guide Holder M.

Adjustment procedure:

- (1) Loosen the fixing screw of the S Drawer Arm Ass'y 1/4 to 1/2 turn.
- (2) Adjust the position of the S Drawer Arm Ass'y with a flatblade screwdriver (3 mm dia.) to meet the required specification.



5-6-2. T Tension Regulator Operating Position Adjustment

Mode: FR-STOP mode

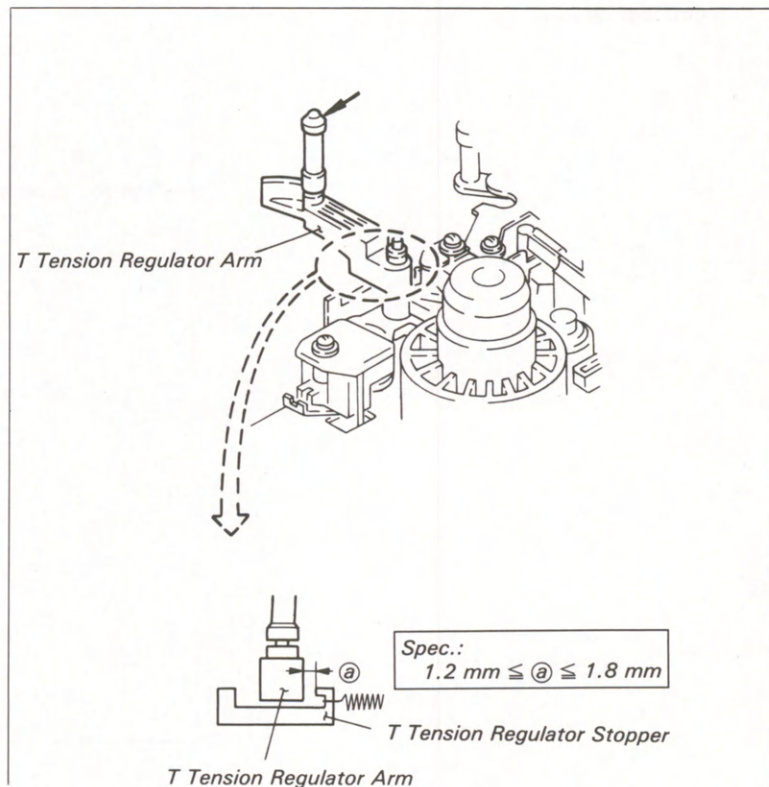
Tool: Thickness gauge

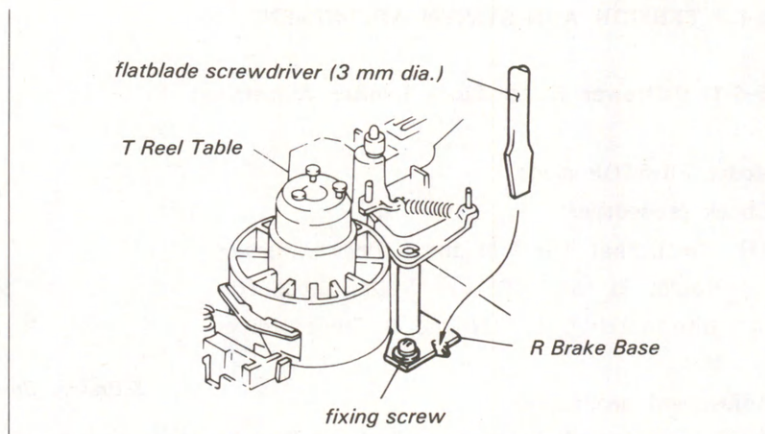
Check procedure:

- (1) Push the T Tension Regulator Arm in the direction of the arrow and remove the finger gently.
- (2) Check that the clearance between the T Tension Regulator Arm and the stopper meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the R Brake Base 1/4 to 1/2 turn.
- (2) Adjust the position of the R Brake Base with a flatblade screwdriver (3mm dia.) to meet the required specification.





5-6-3. S Tension Regulator Operating Position Adjustment

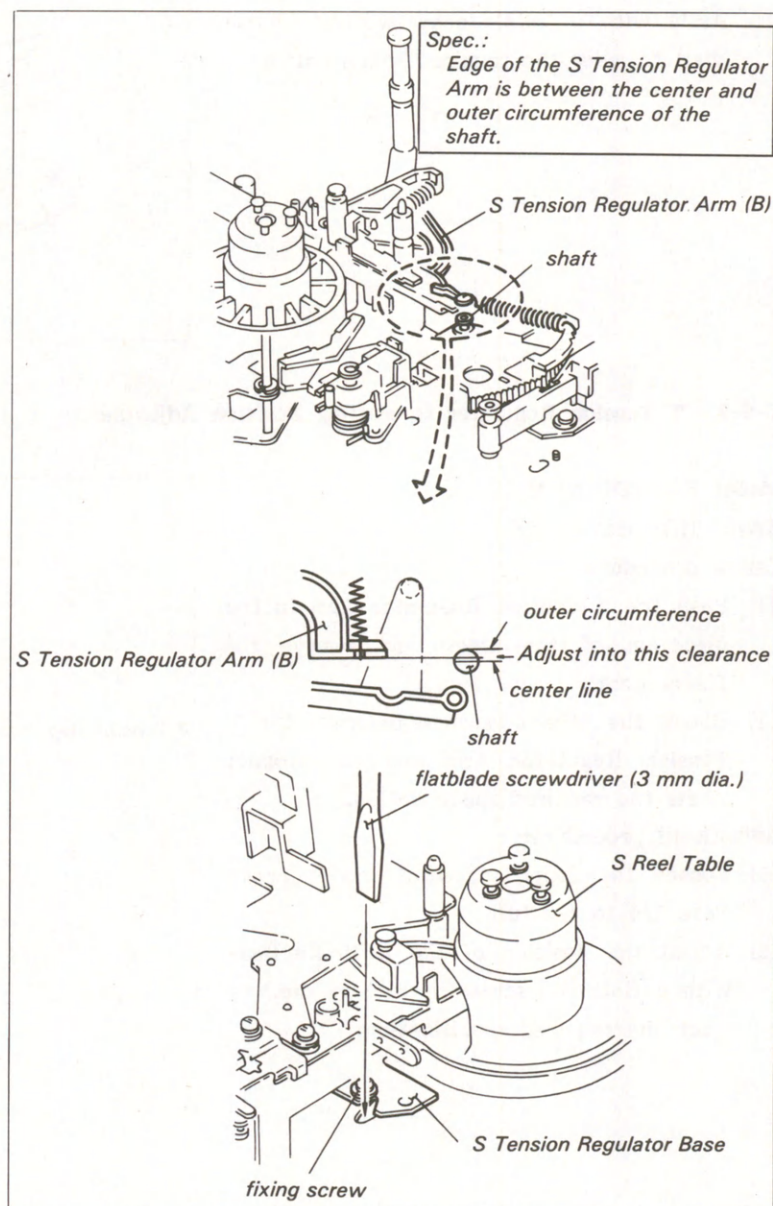
Mode: F-FWD mode

Check procedure:

- (1) Put the unit into the FF mode without a cassette tape.
- (2) Check that the edge of the S Tension Regulator Arm (B) meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the S Tension Regulator Base 1/4 to 1/2 turn.
- (2) Adjust the position of the S Tension Regulator Base to meet the required specification.



5-6-4. Tension Detector Position Adjustment

Tool: DC voltmeter

Mode: FWD / REV mode

Preparation:

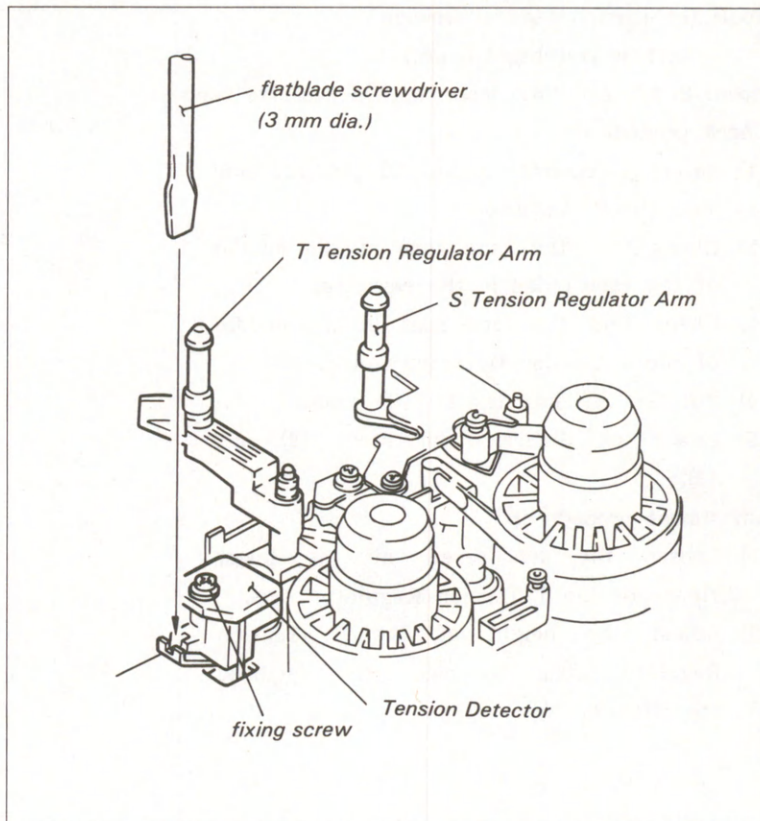
- (1) Connect the dc voltmeter to TP1 on the SY-141 Board.

Check procedure:

- (1) Put the unit into the FWD mode without a cassette tape.
- (2) Push the T Tension Regulator Arm to the right with a hand as far as it will go. Check that the dc voltage is more than 8V.
- (3) Push the T Tension Regulator Arm to the left with a hand as far as it will go. Check that the dc voltage is less than 2.5V.
- (4) Put the unit into the REV mode.
- (5) Push the S Tension Regulator to the right with a hand as far as it will go. Check that the dc voltage is less than 2.5 V.
- (6) Push the S Tension Regulator to the left with a hand as far as it will go. Check that the dc voltage is more than 8 V.

Adjustment procedure:

- (1) Remove the FR Detector Block from the unit.
- (2) Loosen the fixing screw of the Tension Detector 1/4 to 1/2 turn.
- (3) Insert a flatblade screwdriver (3 mm dia) in the notch and adjust the position of the Tension Detector to meet the required specification.
- (4) After adjustment, install the FR Detector.



5-6-5. T Tension Regulator Arm Height Adjustment

Tool: L-shaped hexagonal wrench

(across flat has 1.5 mm)

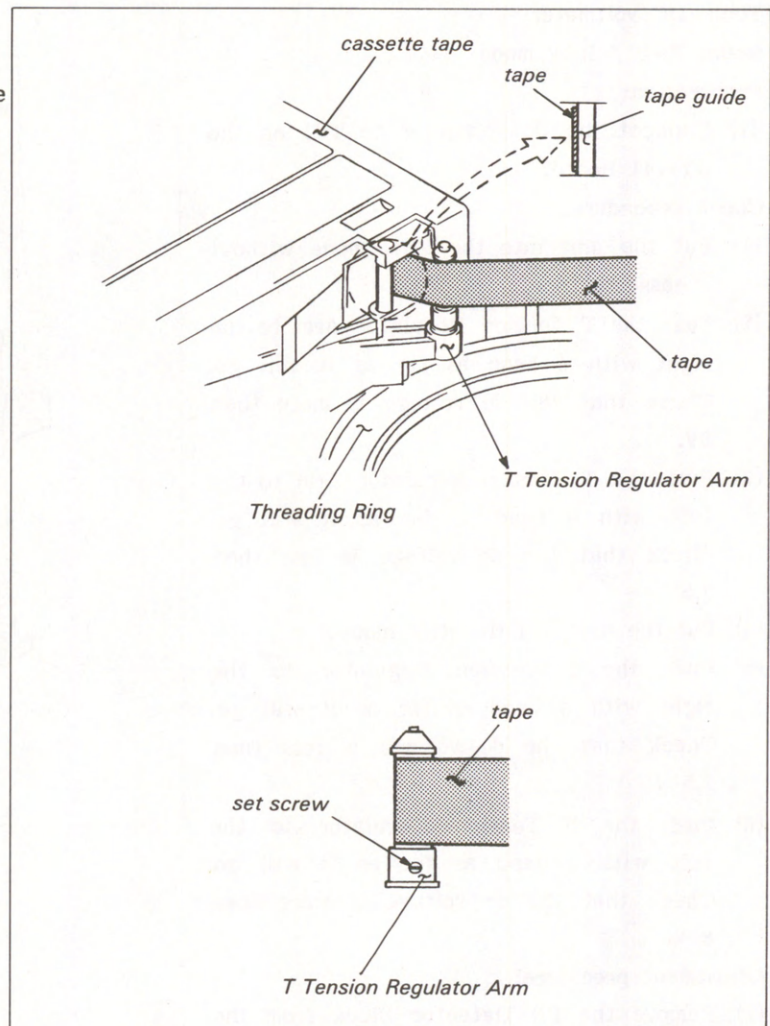
Mode: PLAY / F FWD mode with a cassette tape

Check procedure:

- (1) Insert a cassette tape and put the unit into the PLAY mode.
- (2) Check that the tape runs in the middle of the tape guide in the cassette.
- (3) Check that the tape runs in the middle of the T Tension Detector Guide.
- (4) Put the unit into the F FWD mode.
- (5) Check as described in steps (2) and (3).

Adjustment procedure:

- (1) Loosen the set screw at the lower flange of the T Tension Regulator Arm.
- (2) Adjust the height of the T Tension Regulator Arm to meet the required specification.



5-7. SOLENOID SYSTEM ADJUSTMENT

5-7-1. Search Solenoid Installing Position Adjustment

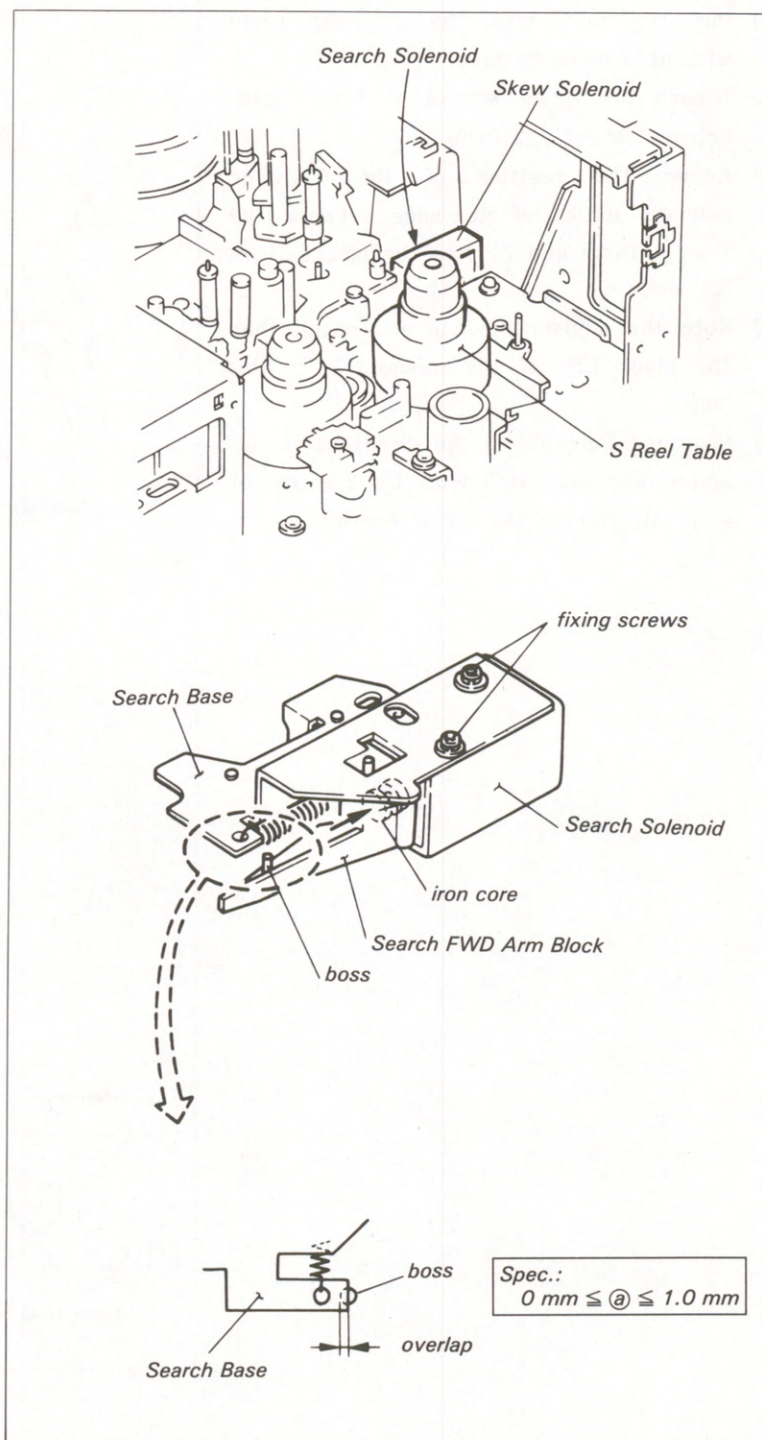
. This adjustment is required only when the search solenoid is replaced or removed.

Preparation:

- (1) Remove the Search Solenoid Block from the chassis.

Adjustment procedure:

- (1) Move the iron core into the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the Search Solenoid so that the overlap of the Search FWD Arm Boss and the Search Base meets the required specification.



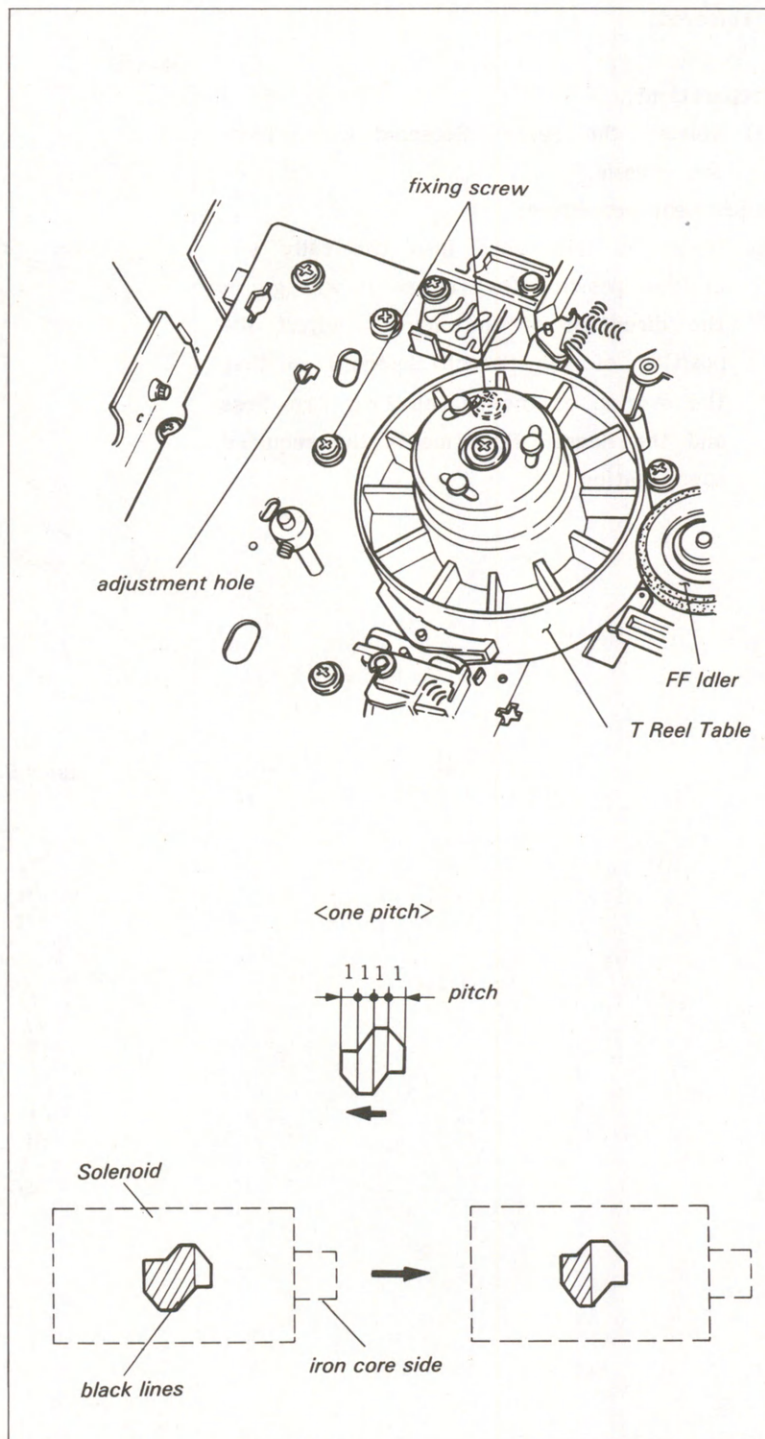
5-7-2. T Idler Solenoid Position Adjustment

. This adjustment is performed when T Idler Solenoid is replaced or removed, and the F FWD Torque does not meet the required specification.

Mode: F.FWD mode without a cassette tape

Adjustment procedure:

- (1) Put the unit into the F FWD mode without a cassette tape.
- (2) Loosen the fixing screws of the T Idler Solenoid about 1/2 turn.
- (3) Adjust the position of the T Idler Solenoid until the clearance between the T Reel Table and FF Idler become 0.01 to 0.1 mm.
- (4) Note the adjustment hole and check that the black line of the solenoid is in this hole.
- (5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.



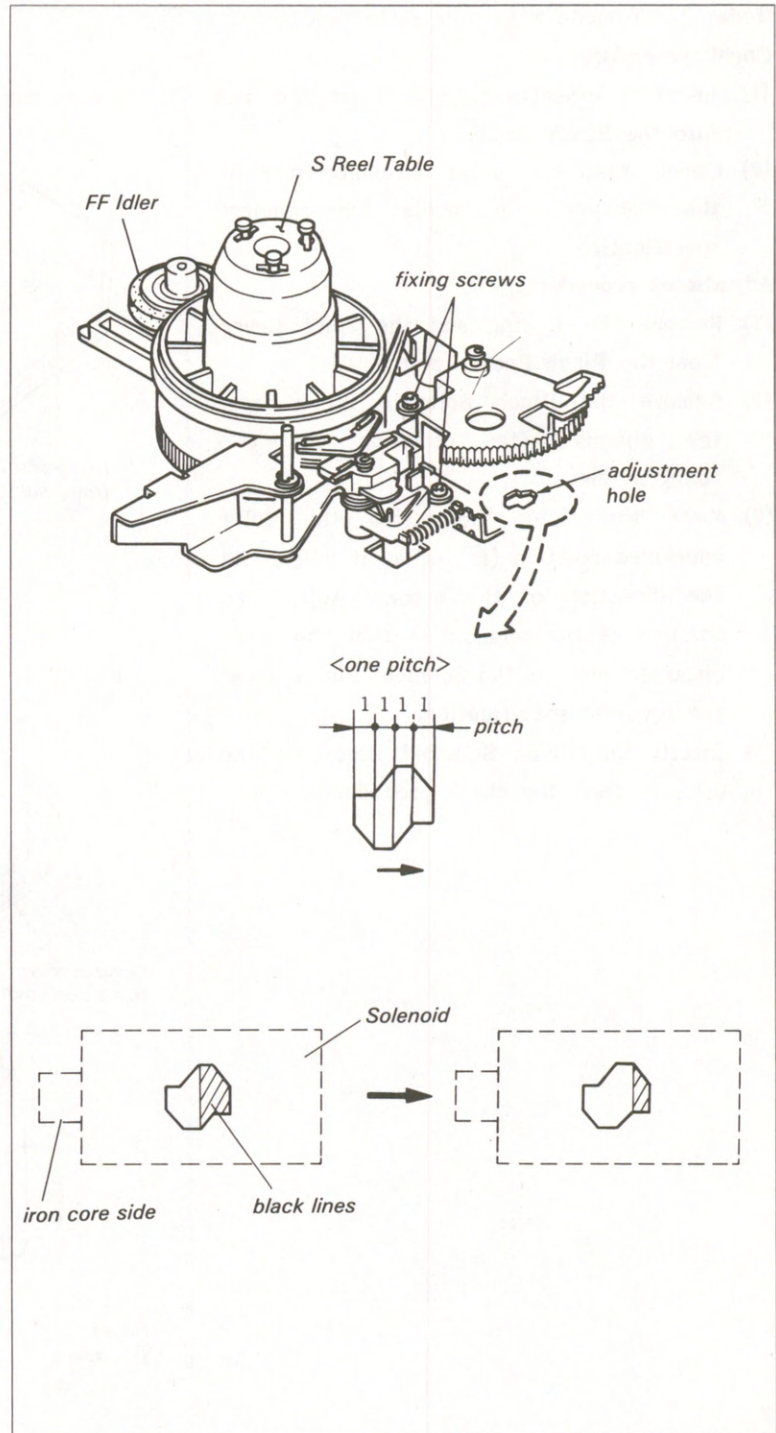
5-7-3. S Idler Solenoid Position Adjustment

. This adjustment is required only when the S Idler Solenoid is replaced or removed, and the REW Torque does not meet the required specification.

Mode: REW mode without a cassette tape

Adjustment procedure:

- (1) Put the unit into the REW mode without a cassette tape.
- (2) Loosen the fixing screws of the S Idler Solenoid about 1/2 turn.
- (3) Adjust the position of the S Idler Solenoid until the clearance between the S Reel Table and FF Idler become 0.01 to 0.1 mm.
- (4) Note the adjustment hole and check that the black line of the solenoid is in this hole.
- (5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.



5-7-4. Pinch Solenoid Installing Position Adjustment

. This adjustment is required only when the Pinch Solenoid is replaced or removed.

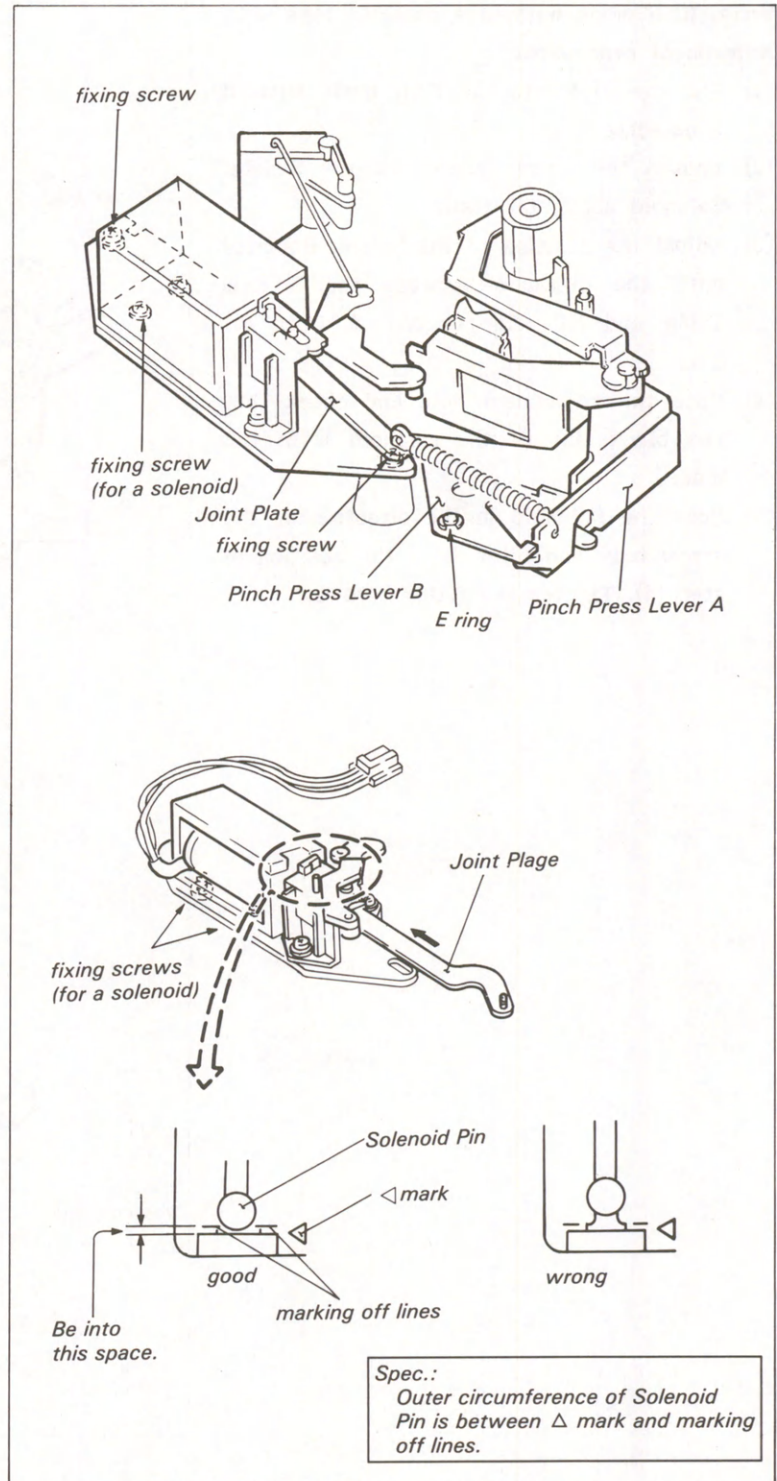
Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a cassette tape and put the unit into the PLAY mode.
- (2) Check that the outer circumference of the Solenoid Pin meets the required specification.

Adjustment procedure:

- (1) Remove the E ring and the Joint Lever from the Pinch Press Lever B.
- (2) Remove the Pinch Solenoid Block from the chassis after removing the two fixing screws.
- (3) Move the Joint Lever to the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the solenoid so that the outer circumference of the Solenoid Pin to meet the required specification.
- (4) Install the Pinch Solenoid Block on the unit. Perform the check procedure.



5-7-5. T Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

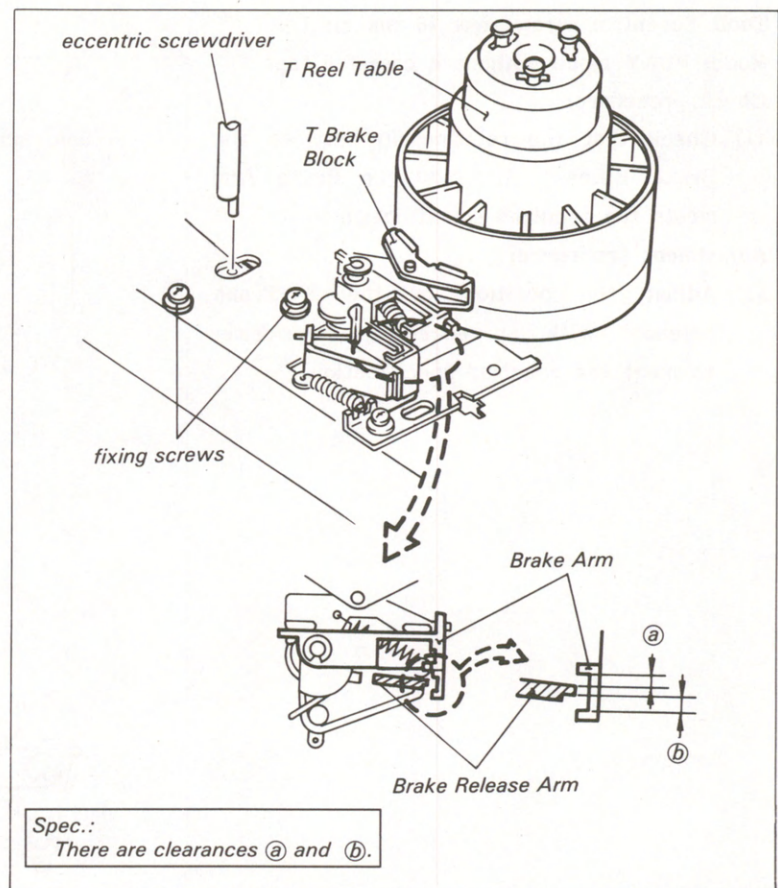
Mode: PLAY mode without a cassette tape

Check procedure:

- (1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the T Brake Solenoid with an eccentric screwdriver to meet the required specification.



5-7-6. S Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

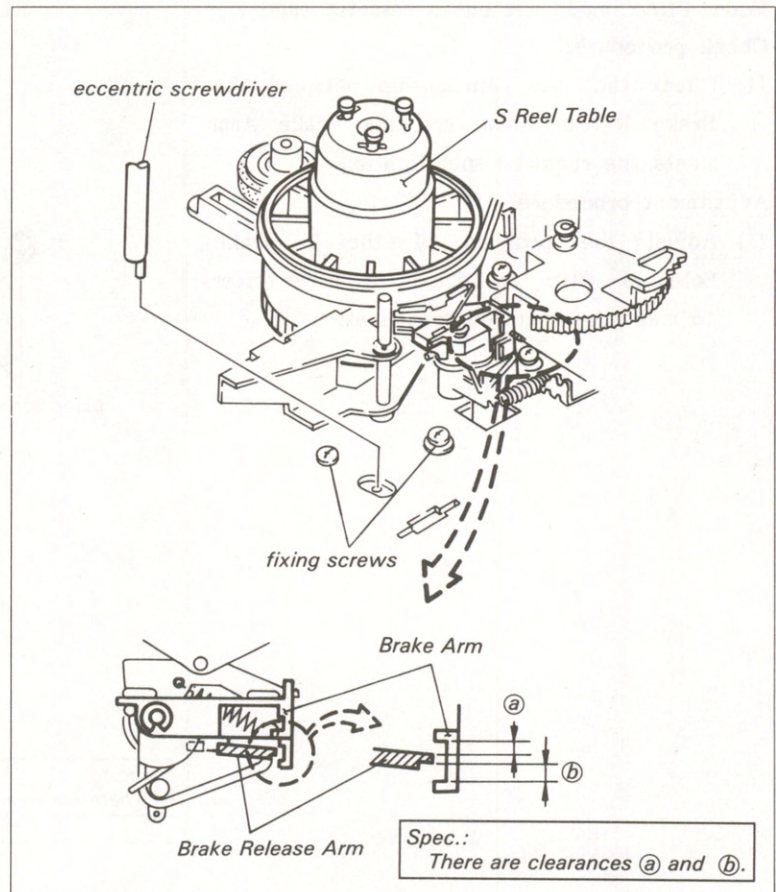
Mode: PLAY mode without a cassette tape

Check procedure:

- (1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the S Brake Solenoid with an eccentric screwdriver to meet the required specification.



5-7-7. Skew Solenoid Position Adjustment

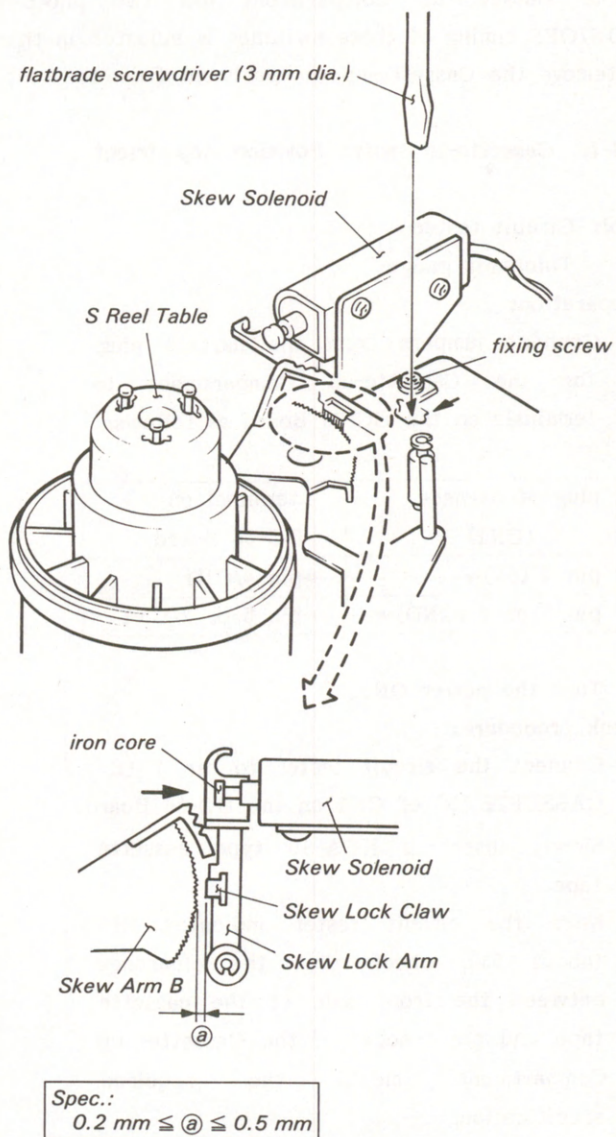
Mode: EJECT completion mode

Check procedure:

- (1) When pushed the iron core in the direction of the arrow, check that the clearance between the Skew Lock claw and Skew Arm B meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the Skew Solenoid Block 1/4 to 1/2 turn.
- (2) Adjust the position of the Skew Solenoid with a flatblade screwdriver (3 mm dia.) to meet the required specification.



5-8. CASSETTE-UP COMPARTMENT ADJUSTMENT

- . The Cassette-up Compartment has two photo-electric switches. The ON/OFF timing of these switches is adjusted in this procedures.
- . Remove the Cassette-up Compartment from the unit for this adjustment.

5-8-1. Cassette-in Switch Position Adjustment

Tool: Circuit tester

Thickness gauge

Preparation:

- (1) Connect jumpers from the harness plug for the Cassette-up Compartment to terminals on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V) ←	→ pin 4/CN1
pin 5 or 2 (GND) ←	→ pin 5 or 2/CN1

- (2) Turn the power ON.

Check procedure:

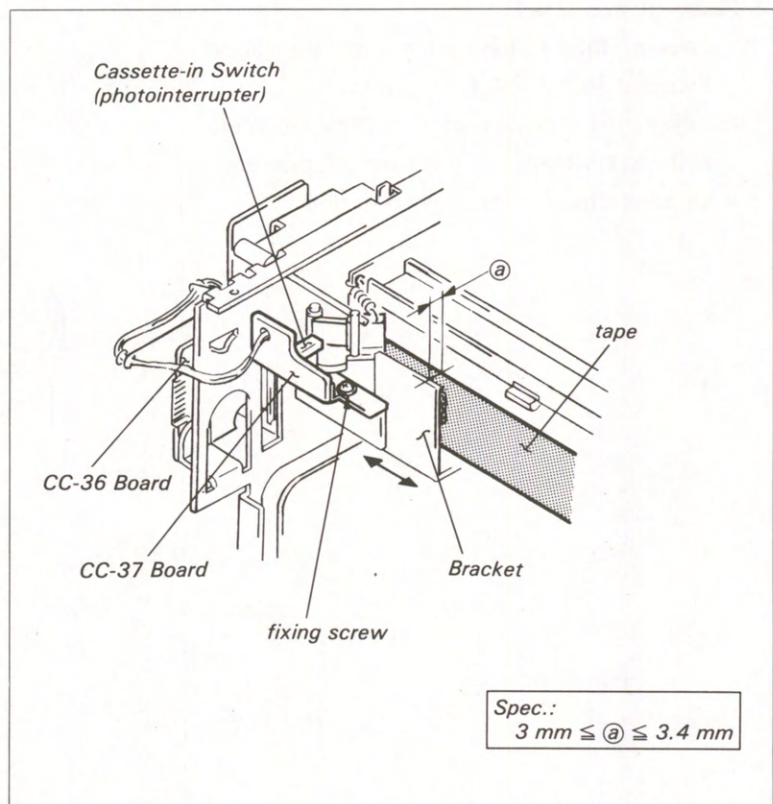
- (1) Connect the circuit tester to pin 1 (H; CASSETTE IN) of CN1 on the CC-36 Board.
- (2) Slowly insert a KCA-60 type cassette tape.
- (3) When the circuit tester indicates "H" (about 5V), check that the clearance between the front side of the cassette tape and the bracket of the Cassette-up Compartment meets the required specification.

Adjustment procedure:

- (1) Move the CC-37 Board (Cassette-in Switch) in the direction of the arrow to meet the required specification.

Reference:

Insert a 3.3 mm thickness gauge between the cassette tape and the bracket. Adjust the position of the Cassette-in Switch until the circuit tester indicates to "H".



5-8-2. Cassette-down Switch Position Adjustment

Tool: Circuit tester

Preparation:

- (1) Connect jumpers from the harness plug of the Cassette-up Compartment to terminal on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V) ←	→ pin 4/CN1
pin 5 or 2 (GND) ←	→ pin 5 of 2/CN1

- (2) Turn the power ON.

Check procedure:

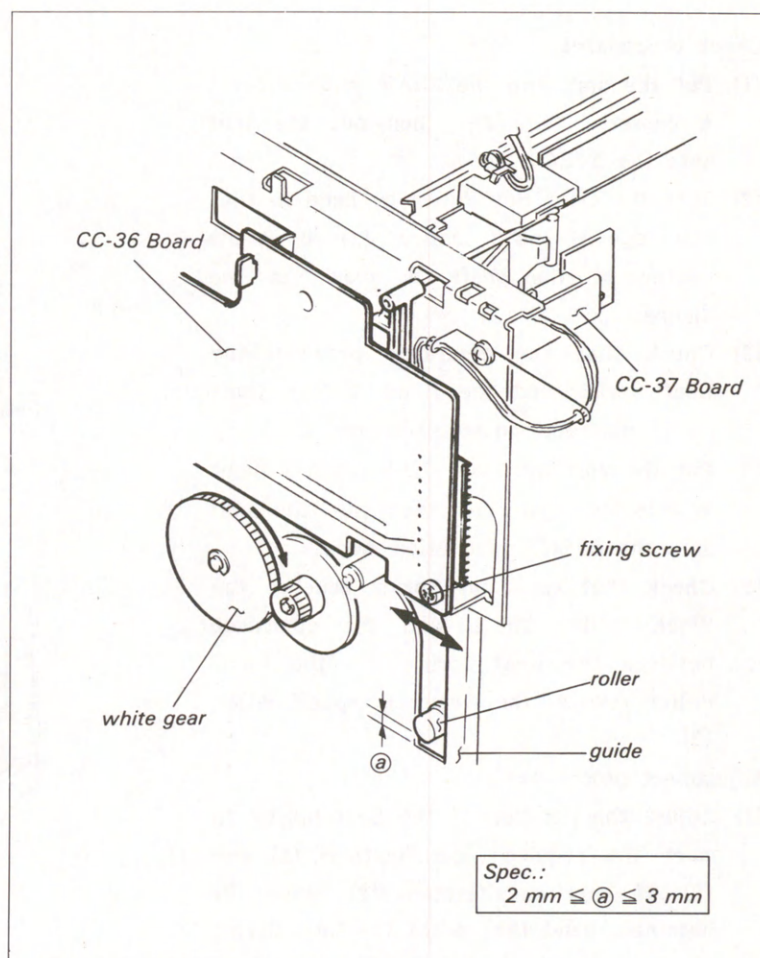
- (1) Connect the circuit tester to pin 3 (H; CASSETTE DOWN) of CN1 on the CC-36 Board.
- (2) Insert a KCA-60 type cassette tape and turn the white gear slowly in the direction of the arrow.
- (3) When the circuit tester indicates "H", check that the clearance between the roller and the guide meets the required specification.

Adjustment procedure:

- (1) Move the CC-36 Board in the direction of the arrow to meet the required specification.

Reference:

Turn the white gear on the right side until the clearance between the roller and the guide is 2.2 mm. Adjust the position of the Cassette-down Switch so that the circuit tester indicates "H" in this position.



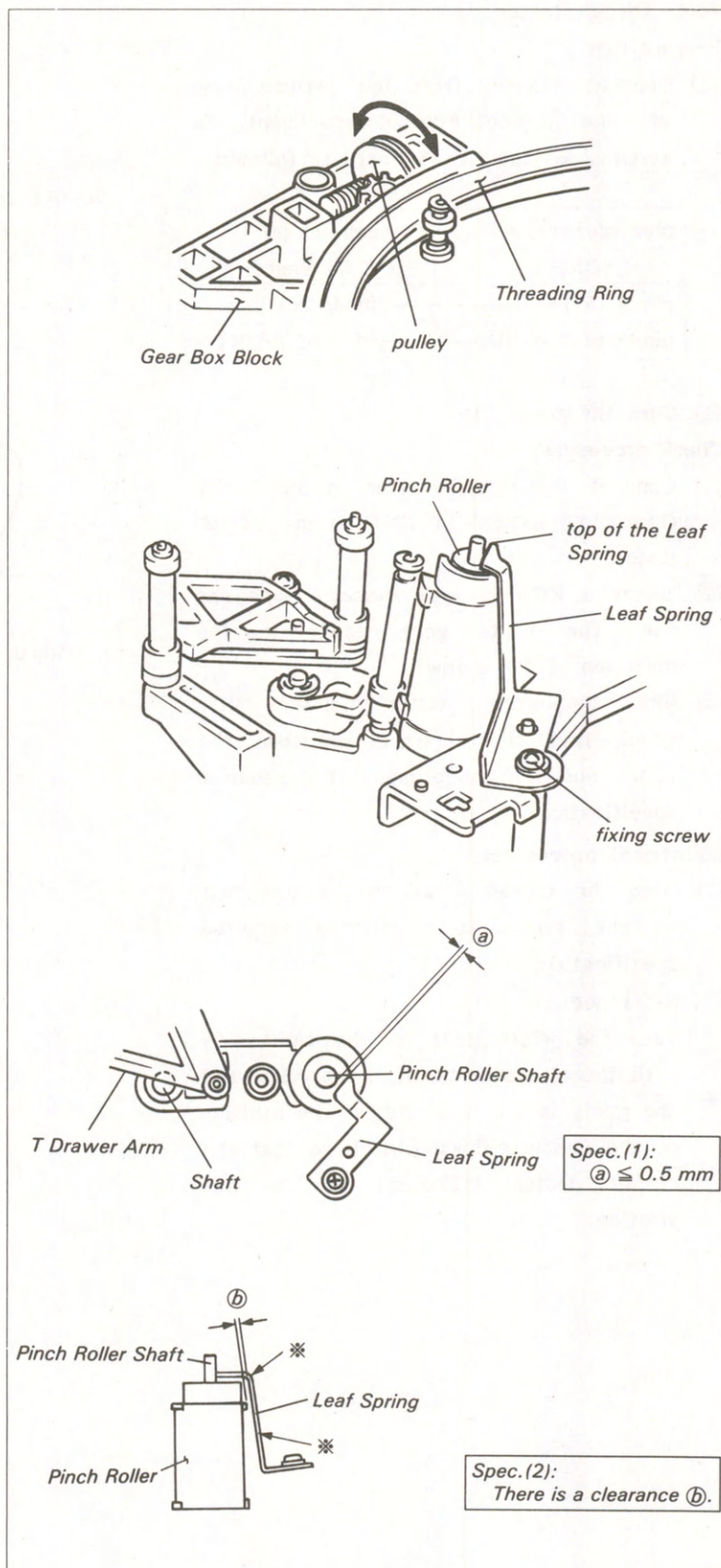
5-9. LEAF SPRING POSITION ADJUSTMENT

Check procedure:

- (1) Put the unit into the PLAY mode without a cassette tape and then put the unit into the EJECT mode.
- (2) Turn the Gear Box Pulley by hand so that the edge of the T Drawer Arm is at the center of the shaft as shown in the figure.
- (3) Check that the clearance between the Leaf Spring and the Pinch Roller Shaft meets the required specification (1).
- (4) Put the unit into the PLAY mode without a cassette tape and then put the unit into the EJECT completion mode.
- (5) Check that the Leaf Spring touches the Pinch Roller Shaft, and the clearance between the Leaf Spring and the Pinch Roller meets the required specification (2).

Adjustment procedure:

- (1) Adjust the position of the Leaf Spring to meet the required specifications (1) and (2). If only specification (2) cannot be obtained, bend the * of the Leaf Spring to meet the required specification.



5-10. Pinch Lever Azimuth Adjustment

Tool: Pinch lever adjustment jig

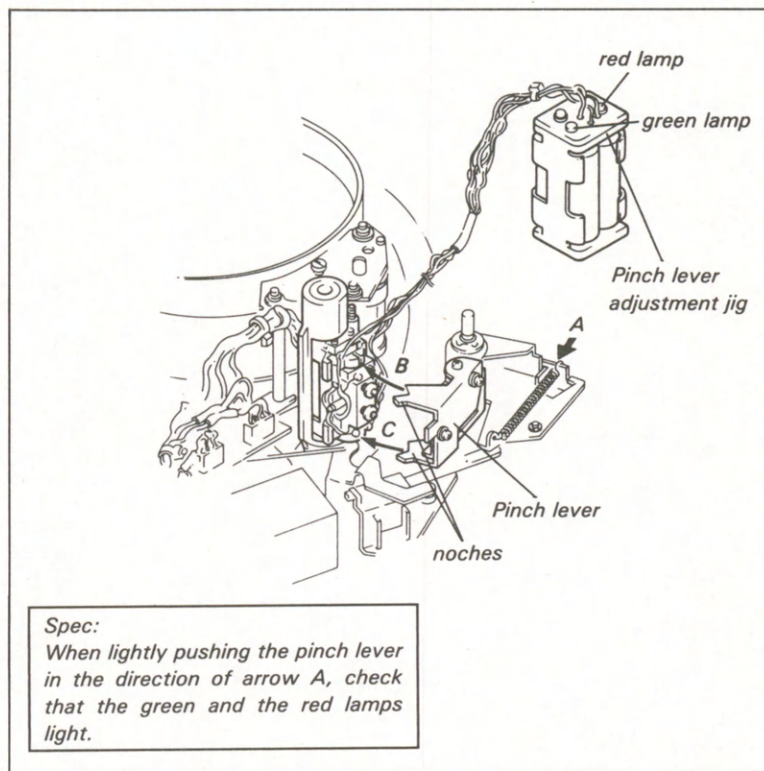
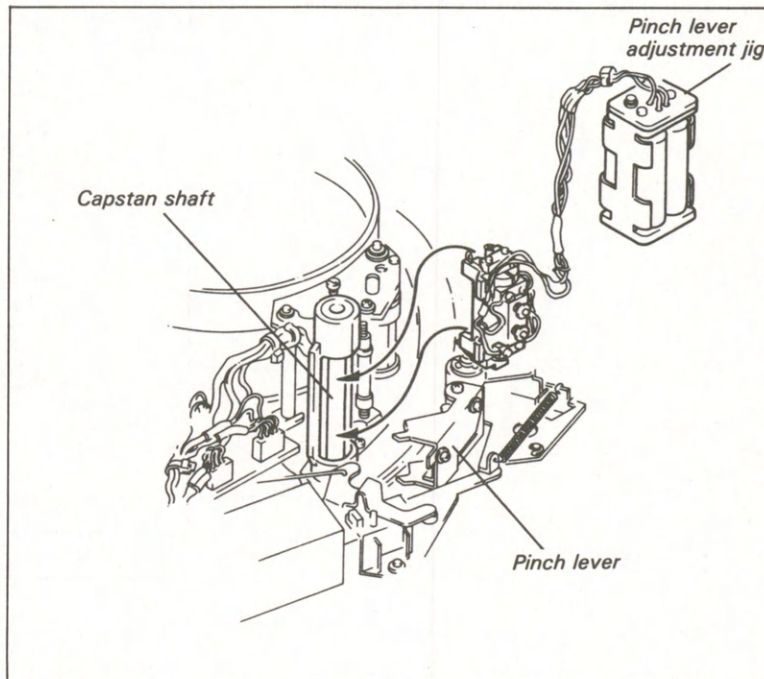
Mode: EJECT completion mode

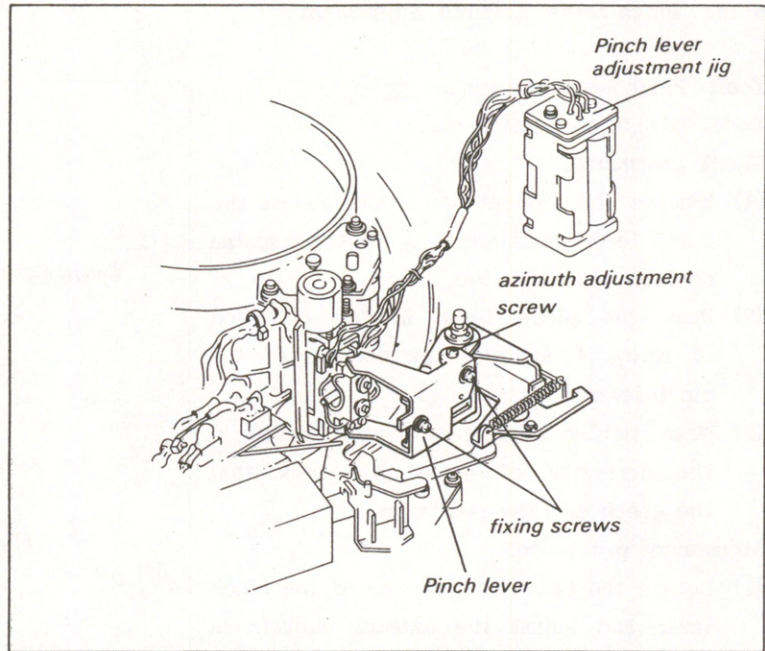
Check procedure:

- (1) Remove the Pre-set Deck and install the pinch lever adjustment jig to the capstan shaft as shown in the figure.
- (2) Push the pinch lever in the direction of arrow A and set the notches of the pinch lever to B and C.
- (3) When lightly pushing the pinch lever in the direction of arrow A, check that the green and the red lamps light.

Adjustment procedure:

- (1) Loosen the two fixing screws of the pinch lever and adjust the azimuth adjustment screw to meet the required specification.
- (2) After tightening the two fixing screws, check that the azimuth adjustment screw is tight.
- (3) Check that it meets the required specification again.





SECTION 6

BACK TENSION AND TORQUE ALIGNMENT

6-1. BRAKE SYSTEM ADJUSTMENT

6-1-1. S Brake Torque Adjustment

Tool: Reel table torque measurement tape
(100 mm dia.)

Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

- (1) Grasp the top of the S Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).
- (2) Place the jig tape on the S Reel Table and hook a tension scale to the end of the jig tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

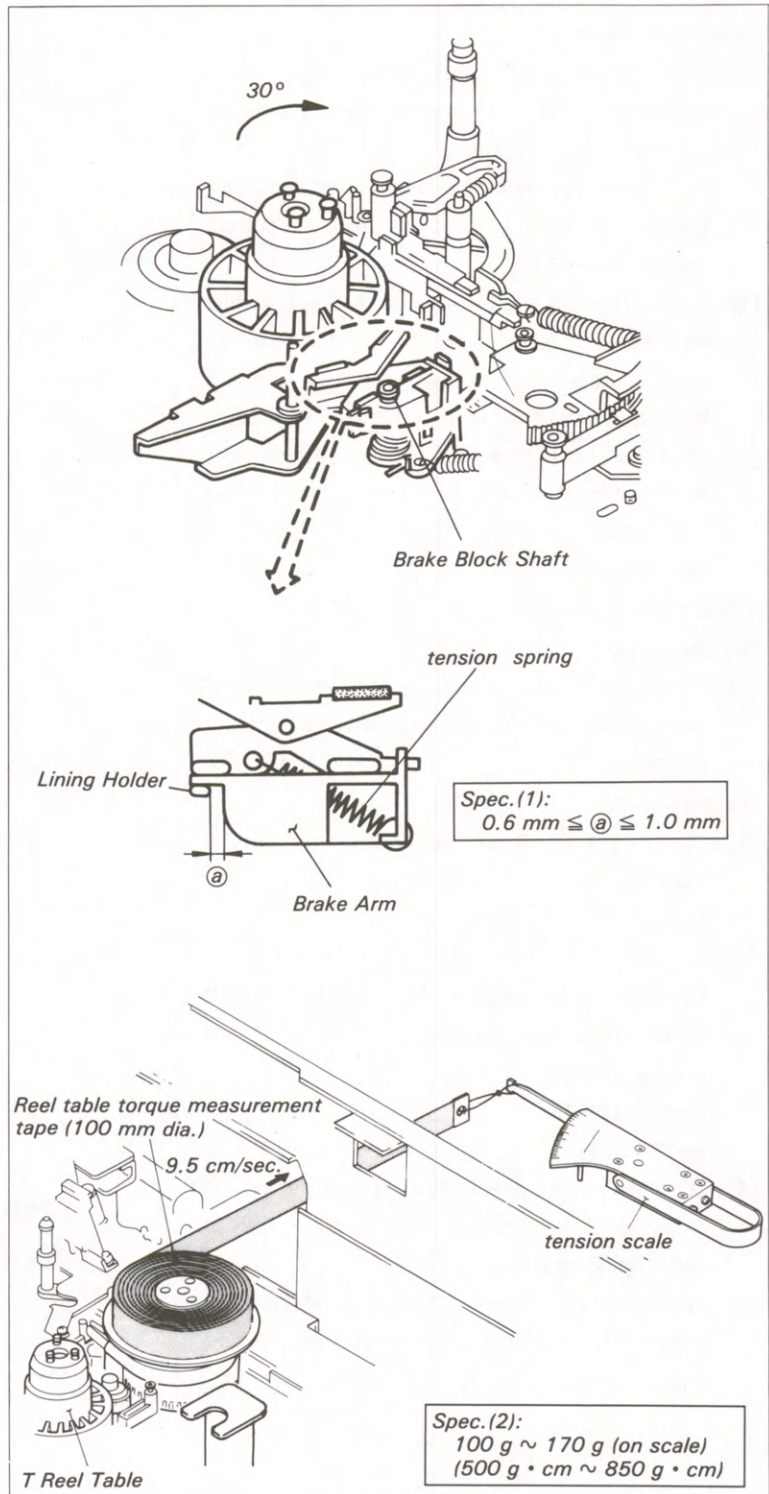
Adjustment procedure:

For Spec. (1)

- (1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

For Spec. (2)

- (2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.
- (3) If dose not meet the specification (2) in step (2), replace the tension spring to the following parts:
 .3-548-124-00
 .3-555-210-00
 .4-907-156-01
- (4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.
- (5) If does not meet the specification in Step (4), replace the reel table and check again.



6-1-2. T Brake Torque Adjustment

Tool: Reel table torque measurement tape
(100 mm dia.)

Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

- (1) Grasp the top of the T Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).
- (2) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape. While pushing the T Tension Regulator to the left, pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

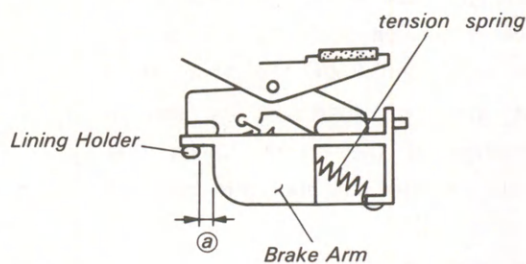
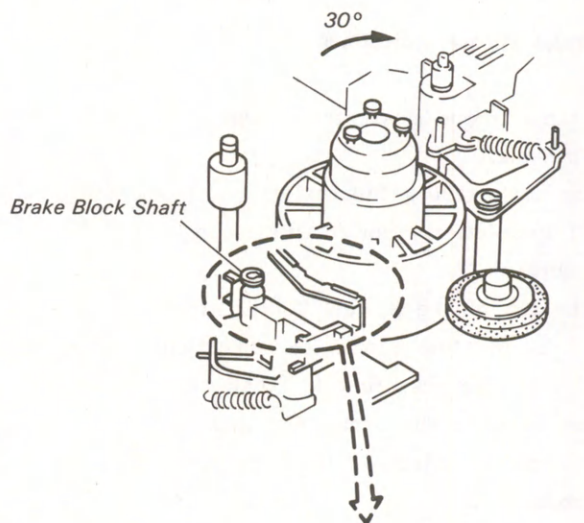
Adjustment procedure:

For Spec. (1)

- (1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

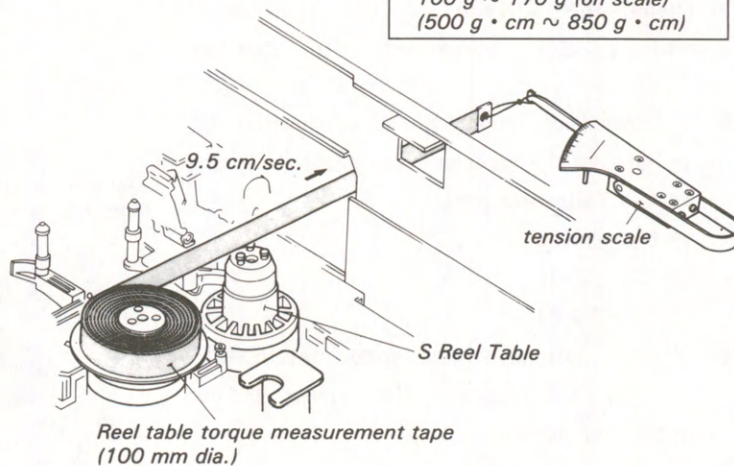
For Spec. (2)

- (2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.
- (3) If does no meet the specification (2) in step (2), replace the tension spring to the following parts:
.3-548-124-00
.3-555-210-00
.4-907-156-01
- (4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.
- (5) If does not meet the specification in Step (4), replace the reel table and check again.



Spec.(1):
 $0.6 \text{ mm} \leq a \leq 1.0 \text{ mm}$

Spec.(2):
100 g ~ 170 g (on scale)
(500 g · cm ~ 850 g · cm)



6-1-3. REW Brake Torque Adjustment

Mode: REW mode

Tool: Reel table torque measurement tape
(100 mm dia.)

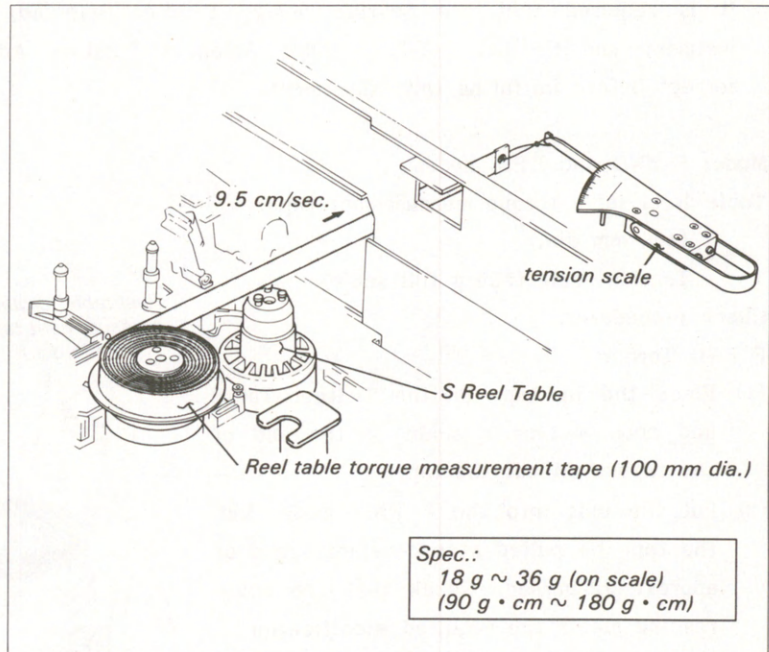
Tension scale (50 g full scale)

Check procedure:

- (1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape.
- (2) Put the unit into the REW mode. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) If does not meet the specification, replace the R Brake Ass'y and check again.
- (2) If does not meet the specification in Step (1), replace the Reel Table and check again.



6-2. F FWD / REW TORQUE ADJUSTMENT

- . It is required that the Section 5-7-2, T Idler Solenoid Position Adjustment and Section 5-7-3, S Idler Solenoid Position Adjustment are correct before initiating this adjustment.

Mode: F FWD and REW modes

Tool: Reel table torque measurement tape
(100 mm dia.)
Tension scale (500 g full scale)

Check procedure:

F FWD Torque

- (1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the tape. Pull out the tape.
- (2) Put the unit into the F FWD mode. Let the tape be pulled at a constant speed of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

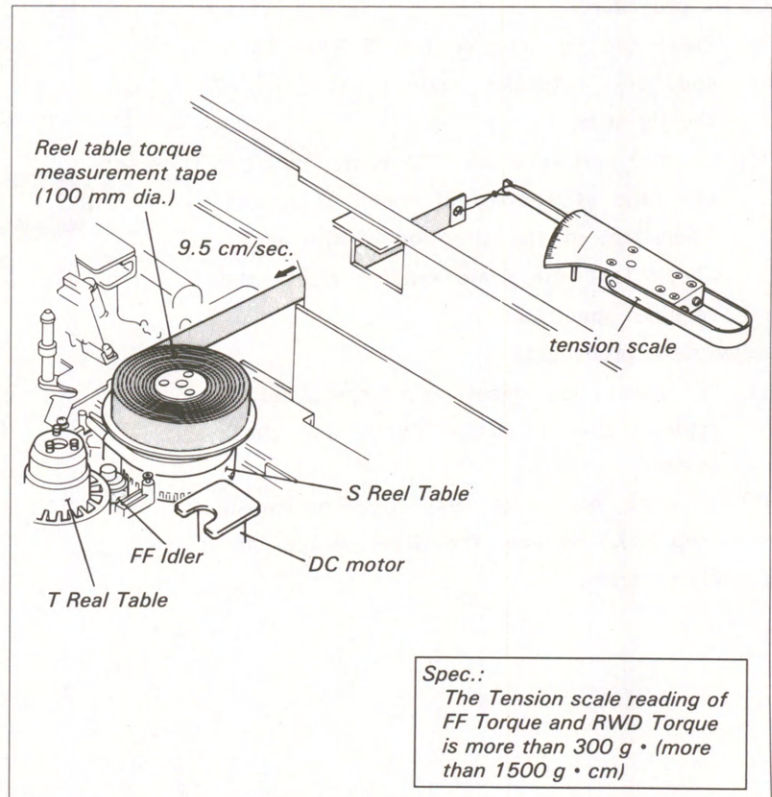
REW Torque

- (3) Install the jig tape on the S Reel Table and hook a tension scale to the end of the tape. Pull out the tape.
- (4) Put the unit into the REW mode. Let the tape be pulled at the constant speed of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

Adjustment procedure:

Both F FWD Torque and REW Torque are adjusted by the following adjustment procedures.

- (1) Clean the surface of the Reel Table, FF idler and belt with a cloth moistened with cleaning fluid. Check the torque again.



- (2) If Step (1) does not meet the specification, put the unit into F FWD or REW mode without a cassette tape. Check that the dc voltage at the terminals of the dc motor is $10.5 \pm 1.5V$. If the dc voltage is out of specification, check that the circuit operation of the SY Board operates correctly.
- (3) If does not meet the specification in Steps (1) and (2), replace the Reel Table, FF idler and belt.

6-3. FWD TORQUE ADJUSTMENT

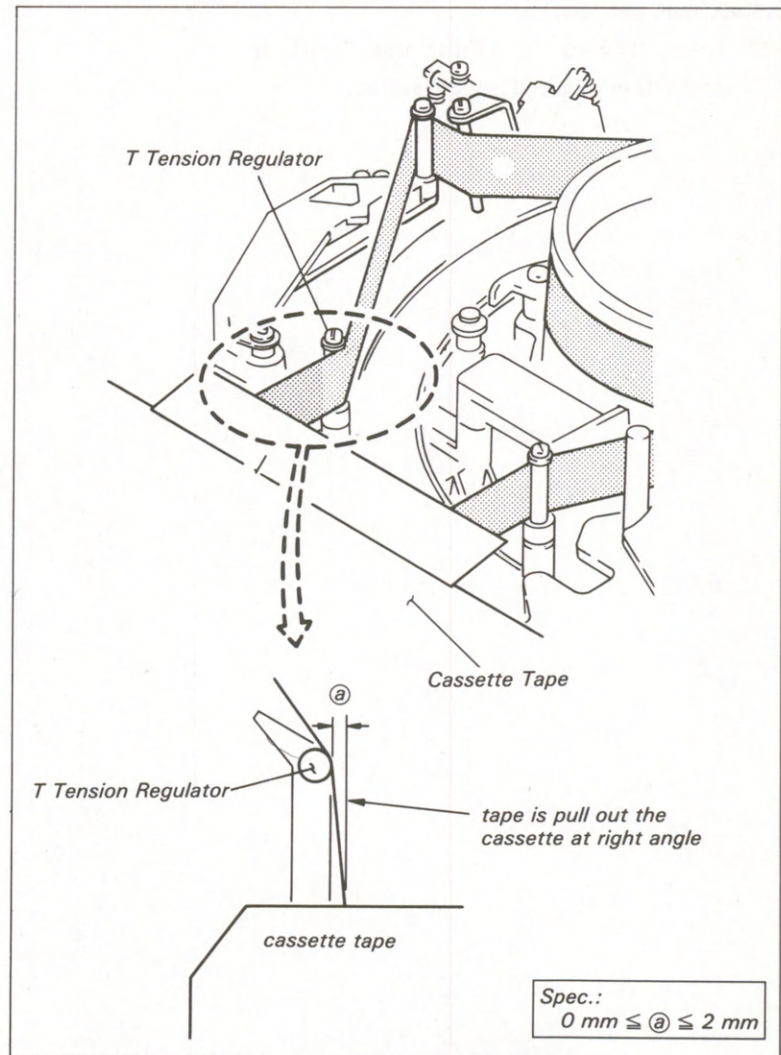
Mode: x1/2 to x1 FWD SEARCH mode

Check procedure:

- (1) Insert a KCS-20 cassette tape wound to the tape end portion.
- (2) Short between TP3 on the SY-141 Board and GND with a shorting clip.
- (3) Put the unit into x1/2 to x1 FWD SEARCH mode with search dial.
- (4) Check that the relationship between the T Tension Regulator Arm and cassette tape meets the required specification.

Adjustment procedure:

- (1) Adjust RV3 on the SY-141 Board until it meets the required specification in the FWD mode.



6-4. REV TORQUE ADJUSTMENT

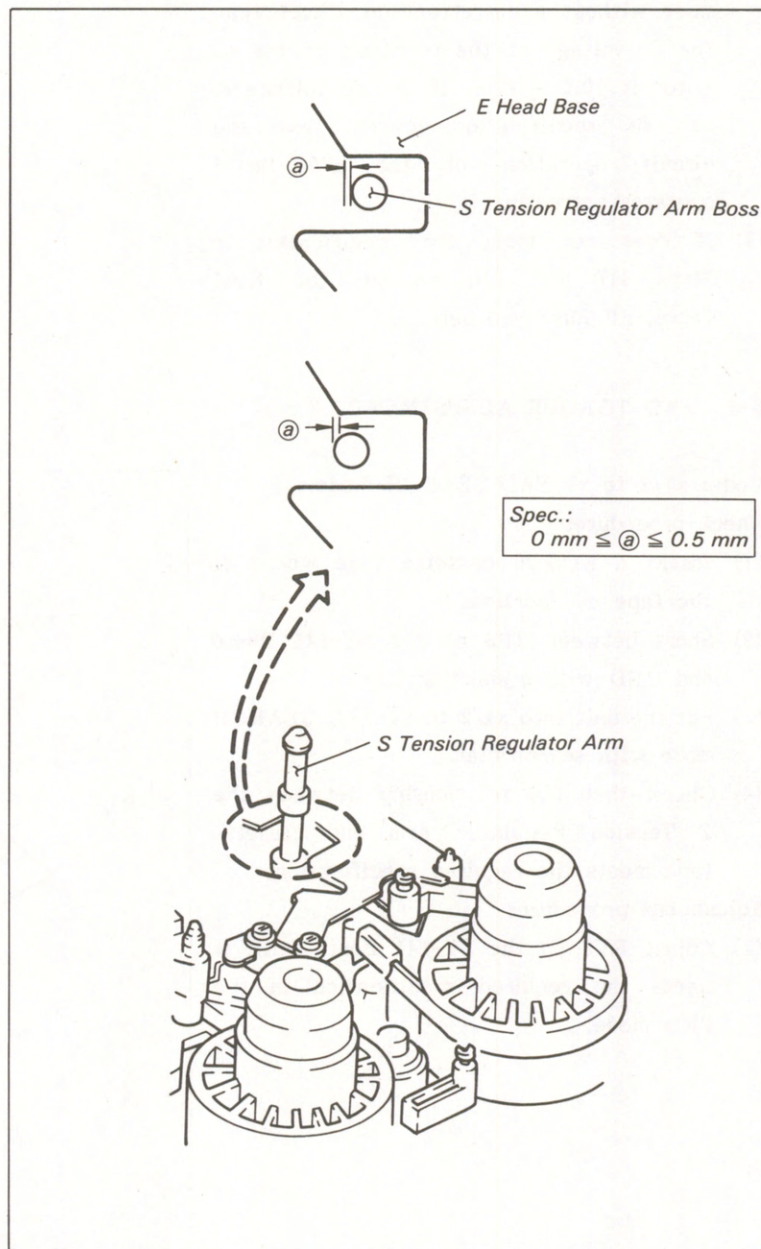
Mode: x1/2 to x1 REV SEARCH mode

Check procedure:

- (1) Insert a KCA-60 cassette tape wound to the tape beginning portion.
- (2) Short between TP3 on the SY-141 Board and GND with a shorting clip.
- (3) Put the unit into x1/2 to x1 REV SEARCH mode with search dial.
- (4) Check that the relationship between the S Tension Regulator Boss and the bracket of the Erase Head Base meets the required specification.

Adjustment procedure:

- (1) Adjust RV2 on the SY-141 Board until it meets the required specification.



6-5. F FWD BACK TENSION ADJUSTMENT

- . It is required that the Section 5-6-3, S Tension Regulator Operating Position Adjustment is correct before initiating this adjustment.
- . It is required that the Section 6-6, FWD Back Tension Adjustment is performed after this adjustment.

Tool: Back tension adjustment jig
Reel table torque measurement tape
(100 mm dia.)
Tension scale (50 g full scale)

Preparation:

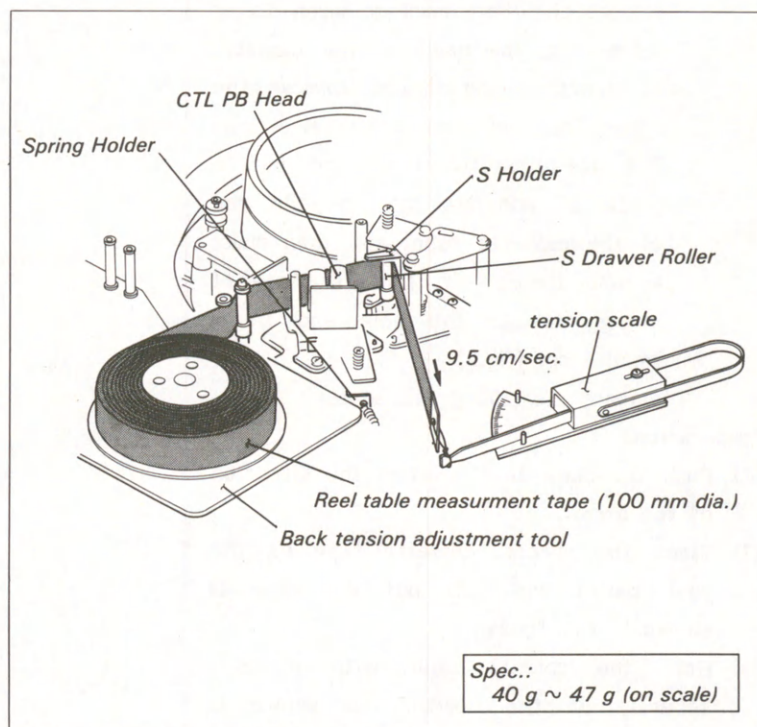
- (1) Turn the power ON and put the unit into the FR-STOP mode. (When the power is ON, the S Drawer Arm moves and the unit automatically enters the FR-STOP mode.)
- (2) Turn the Pulley of Gear Box Block by hand in the direction of the Threading Ring until the S Drawer Roller is in front of the CTL PB Head.
- (3) Place the Back Tension Adjustment Jig.
- (4) Place the jig tape on the S Reel Table and pull out the tape as shown in the figure. Check that the tape does not curl at the flange of the S Drawer Roller.
- (5) Turn the Pulley in the opposite direction in Step (2) until the S Drawer Roller is engaged with the S Holder.
- (6) Hook a tension scale to the end of the tape.

Check procedure:

- (1) Press the F FWD button and put the unit into the F FWD mode.
- (2) Pull out a tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Move the position of the Spring Holder with a flatblade screwdrivers (3mm dia.) to meet the required specification.
- (2) After the adjustment, perform the check procedures again.
- (3) Perform the Section 6-6, FWD Back Tension Adjustment.



6-6. FWD BACK TENSION ADJUSTMENT

Tool: Back tension measurement special cassette tape

This cassette should be prepared as follows:

- Wind up tape to the S Reel and remove the * marked seven fixing screws on the back of the cassette as shown in the figure. Remove the upper half of the cassette. (fig.1) Cut the cassette tape and put a piece of adhesive tape on the end of the cassette tape, and then make a hole through it. Lace a piece of string through the hole and tie a small loop. (fig.2)

Tension scale (100 g full scale)

Preparation:

- (1) Push the Skew Lock Arm in the direction of the arrow.
- (2) Place the special cassette tape on the reel tables and pull out the tape as shown in the figure.
- (3) Hold the special tape with a hand securely at the position as shown in the figure. Turn the power ON and put the unit into the FR-STOP mode. Check that the tape does not curl at the flange of the S Drawer Roller.
- (4) Hook the tension scale to the end of the special tape. Be sure that the tape does not curl at the upper or lower flange of the S Drawer Roller.

Check procedure:

- (1) Put the unit into the PLAY mode. Pull out the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

- (1) Adjust the position of the proper spring hook of the Skew Arm B to meet the required specification.
- (2) After adjustment, perform the check procedures again.

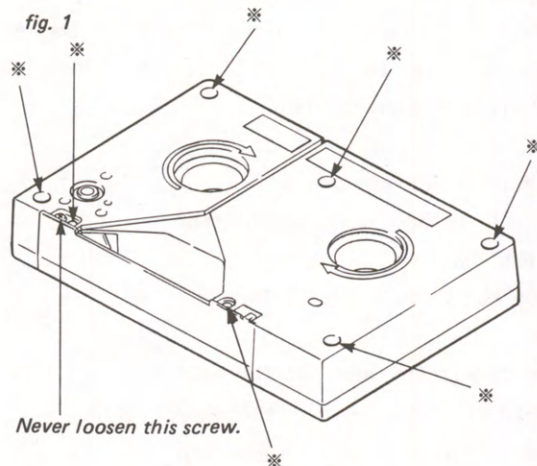
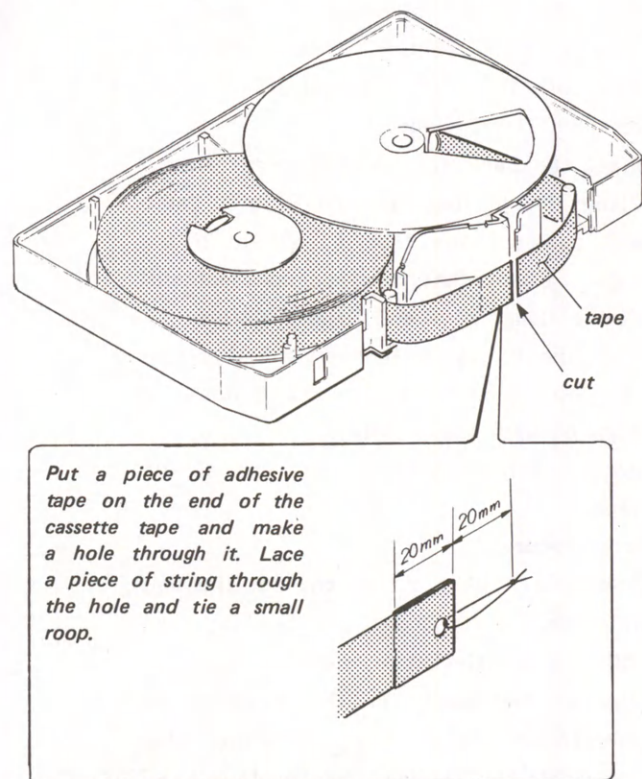
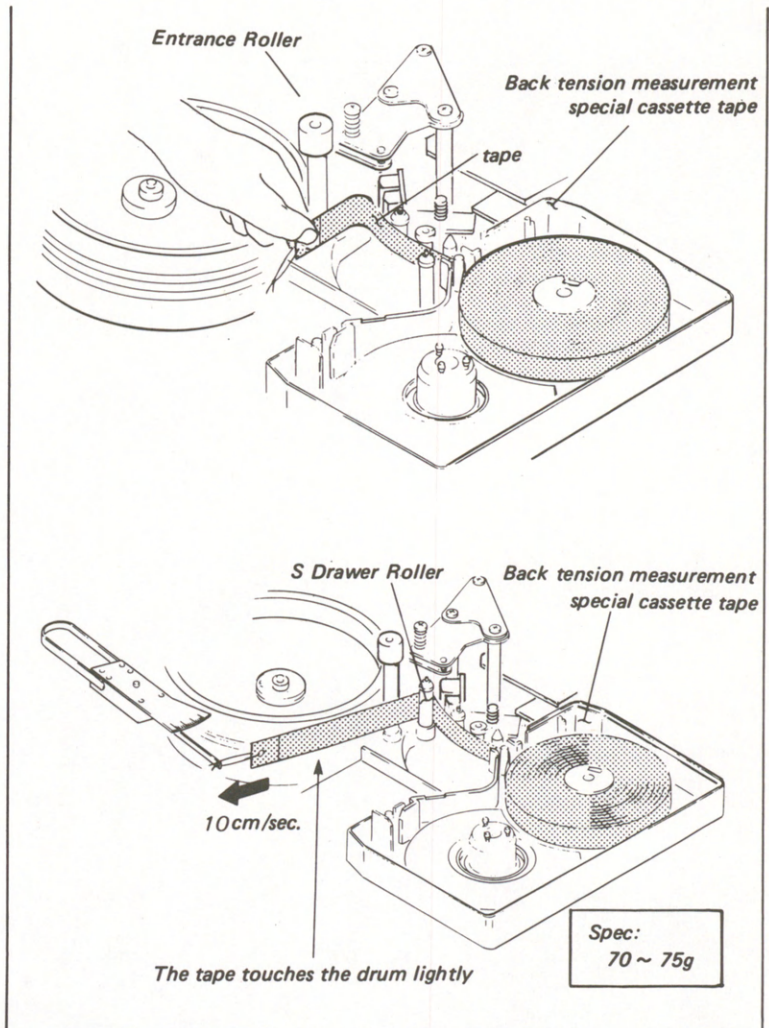


fig. 2





SECTION 7

TAPE RUN ALIGNMENT

7-1. F FWD/REW MODES TAPE PATH ADJUSTMENT

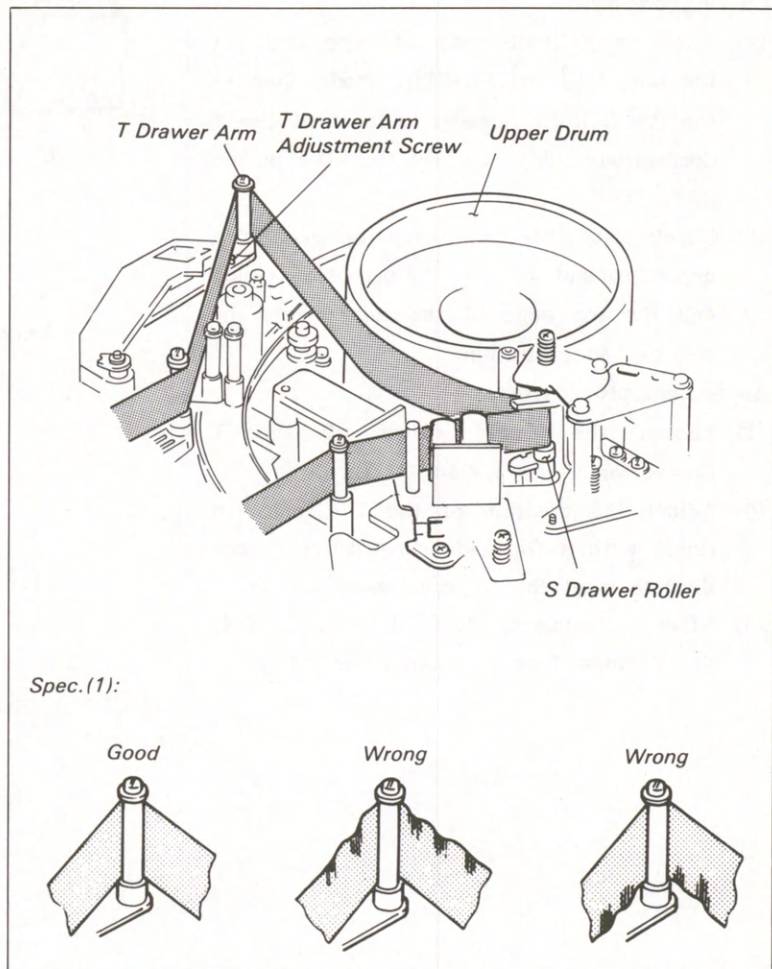
Mode: F FWD and REW modes

Check procedure:

- (1) Insert a KCA-60 cassette tape which has advanced about half way through (about 30 minutes). Put the unit into the REW mode.
- (2) Check that the tape tension is equal around the T Drawer Arm. (Spec.1)
- (3) Check that the tape runs without any curling at the upper or lower flange of the S Drawer Roller in the REW mode. (Spec. 2)
- (4) Put the unit into the STOP mode, and then into the REW mode. Check that the tape runs without any curling at the S Drawer Roller at the moment just after entering the REW mode. (Spec. 3)
- (5) Put the unit into the F FWD mode. Check that the tape runs without any curling at the S Drawer Roller and T Drawer Arm at the moment of just after entering the F FWD mode. (Spec. 4)

Adjustment procedure:

- (1) Adjust the slantness of the T Drawer Arm by turning the T Drawer Arm Adjustment Screw.



7-2. T CORRECTION GUIDE SLANTNESS ADJUSTMENT

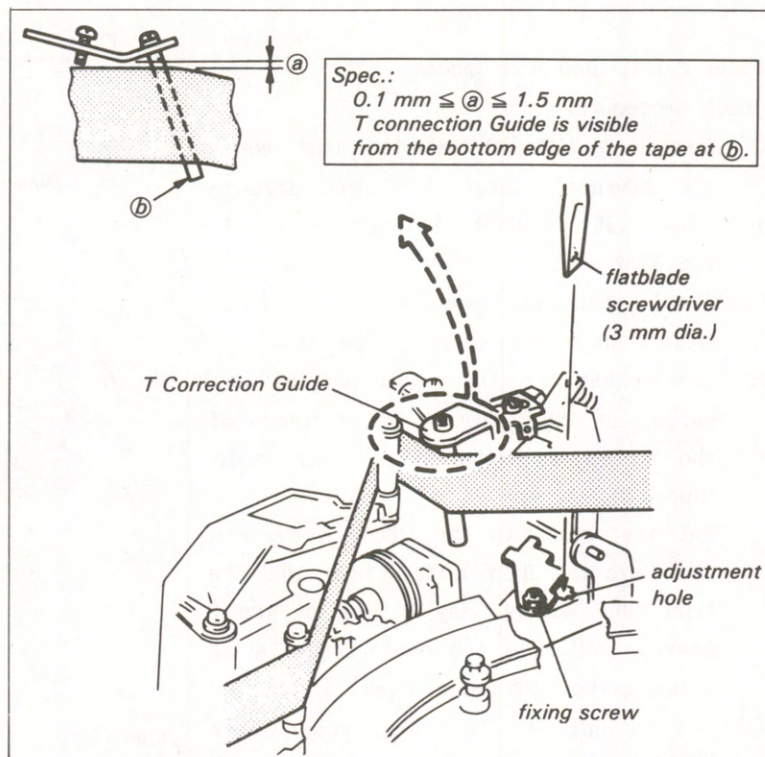
Tool: Dental mirror

Check procedure:

- (1) Insert a KCA-60 cassette tape and put the unit into the FR-STOP mode. Just as the Pinch Roller passes in front of the T Correction Guide, quickly turn the power OFF.
- (2) Check that the clearance between the upper bracket of the T Correction Guide and the top edge of the tape meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw of the T Correction Guide 1/4 to 1/2 turn.
- (2) Adjust the position of the T Correction Guide with a flatblade screwdriver (3 mm dia.) to meet the required specification.
- (3) After adjustment, perform Section 7-4, PLAY Mode Tape Path Adjustment (1).



7-3. TIME CODE HEAD ADJUSTMENT

- The Time Code Head is located near the drum. During adjustment of the Time Code Head, be sure to not damage the video head or scratch the drum.
- The Time Code Head Zenith Adjustment is closely related to the Azimuth Adjustment and the Height Adjustment. When performing any of these adjustments, always perform the other two adjustments at the same time.

7-3-1. Time Code Head Zenith Adjustment

Tool: Flatness plate

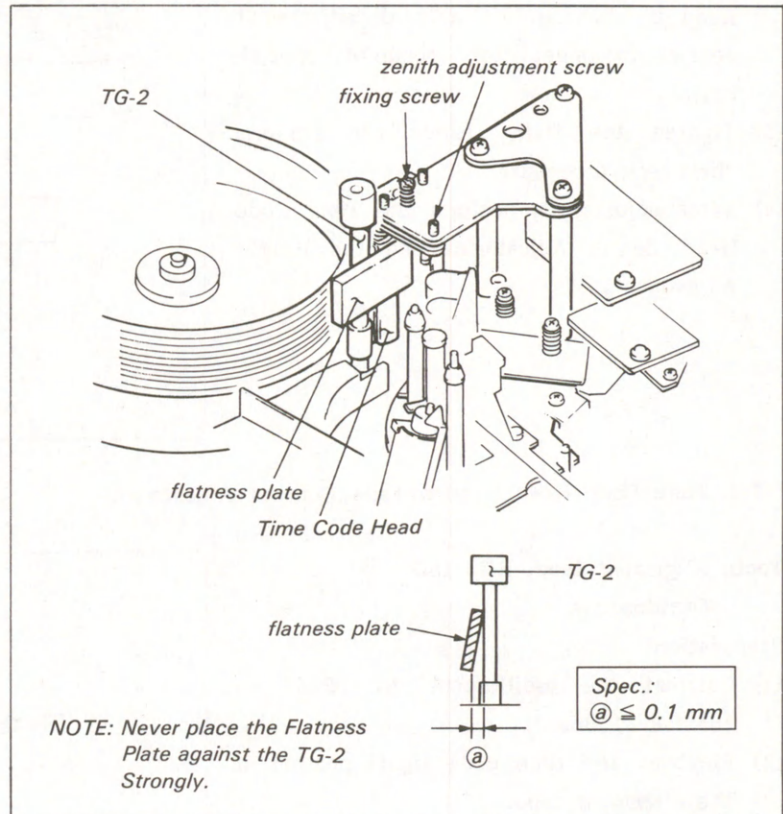
Mode: EJECT completion mode

Check procedure:

- (1) Place the Flatness Plate against the TG-2 and the Time Code Head. Check that the clearance between the TG-2 and the Flatness Plate meets the required specification.

Adjustment procedure:

- (1) Loosen the fixing screw 1/4 to 1/2 turn.
- (2) Adjust the zenith of the Time Code Head by turning the zenith adjustment screw to meet the required specification.
- (3) Tighten the fixing screw and perform the check procedure.
- (4) After adjustment, perform the Time Code Head Azimuth Adjustment and the Height Adjustment.



7-3-2. Time Code Head Azimuth Adjustment

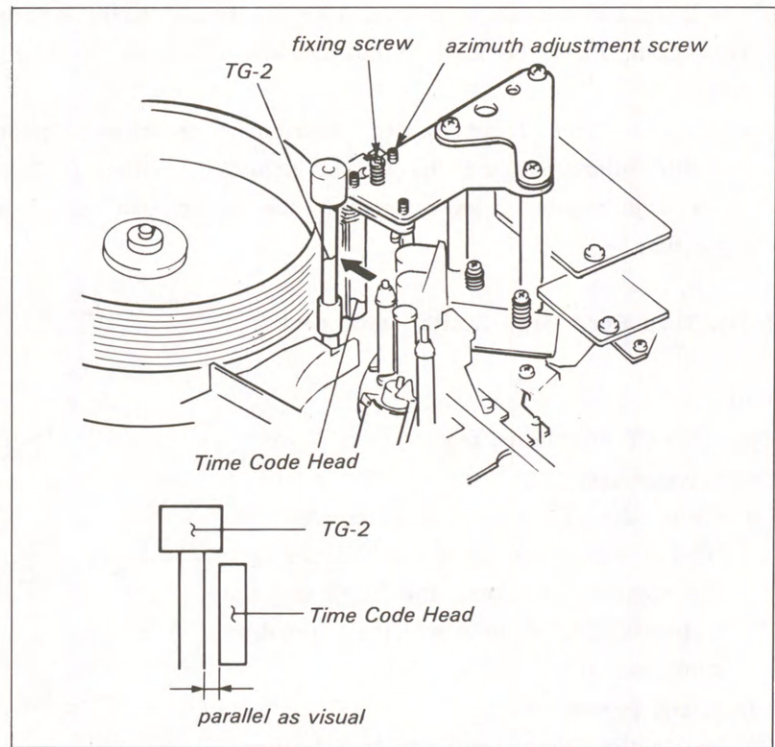
Mode: EJECT completion mode

Check procedure:

- (1) Check that the clearance between the top or the bottom of the Time Code Head and the TG-2 is parallel.

Adjustment procedure:

- (1) Loosen the fixing screw 1/4 to 1/2 turn.
- (2) Adjust the azimuth of the Time Code Head by turning the azimuth adjustment screw to meet the required specification.
- (3) Tighten the fixing screw and perform the check procedure.
- (4) After adjustment, perform the Time Code Head Zenith Adjustment and the Height Adjustment.



7-3-3. Time Code Head Head-to-tape Contact Adjustment

Tool: Alignment tape, RR5-1SD

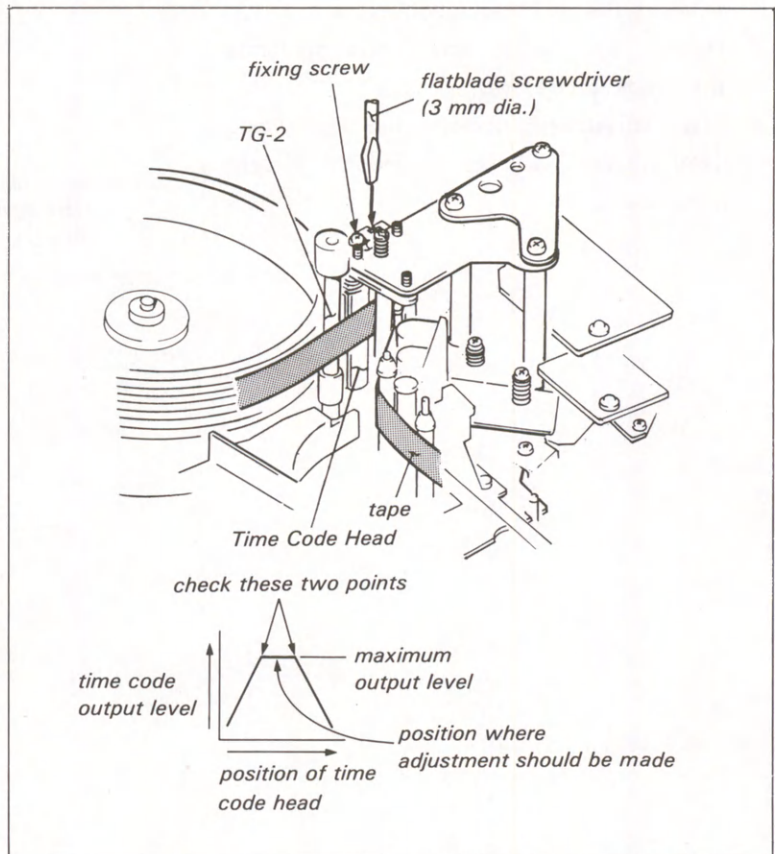
Oscilloscope

Preparation:

- (1) Connect the oscilloscope to TP405 on the NR-31 Board.
- (2) Playback the time code signal portion of the alignment tape.

Adjustment procedure:

- (1) Loosen the fixing screw of the head-to-tape contact adjustment 1/4 to 1/2 turn.
- (2) Insert a flatblade screwdriver (3mm dia.) into the notch as shown in the figure. Find the two points where the output waveform is at maximum and just starts to decrease.
- (3) Adjust the position of the Time Code Head Block with a flatblade screwdriver (3 mm dia.) to the center of these two points. After adjustment, tighten the fixing screw.



7-4. PLAY MODE TAPE PATH ADJUSTMENT (1)

. It is required that Section 7-2, T Correction Guide Slantness Adjustment and Section 7-1, F FWD/REW Modes Tape Path Adjustment are correct before initiating this adjustment.

Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.
- (2) Check that the tape runs without any curling at the upper or lower flange of the T Drawer Guide. (Spec.1)
- (3) Check that tape tension is equal at the top and bottom edges of the tape around the T Drawer Guide, and that the tape runs without any curling at the lower flange of the T Drawer Guide. (Spec.2)

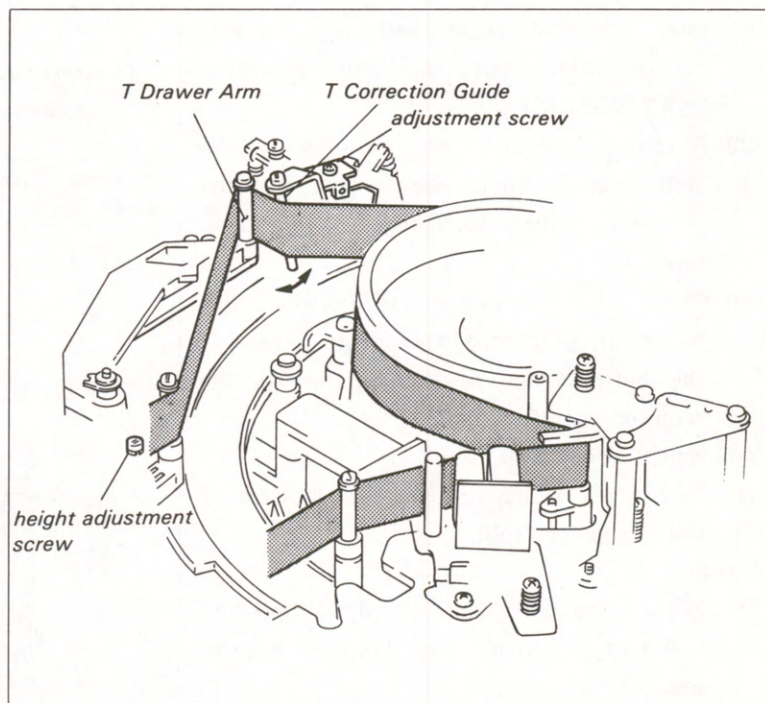
Adjustment procedure:

For Spec.1

- (1) Adjust the height of the T Drawer Arm by turning the T Drawer Arm Height Adjustment Screw.

For Spec.2

- (2) Bend the T Correction Guide in the direction of the arrow. Turn the adjustment screw if necessary to meet the required specification.



7-5. PLAY MODE TAPE PATH ADJUSTMENT (2)

Tool: Dental mirror

Mode: PLAY mode with a cassette tape

Check procedure:

- (1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.
- (2) At the * marks (two positions) in the figure, check that tape tension is equal at the top and bottom edges of the tape. (Spec.1)
- (3) Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification (2).

Adjustment procedure:

- (1) Loosen the fixing screw at the bottom of the Threading Roller.

For Spec.1

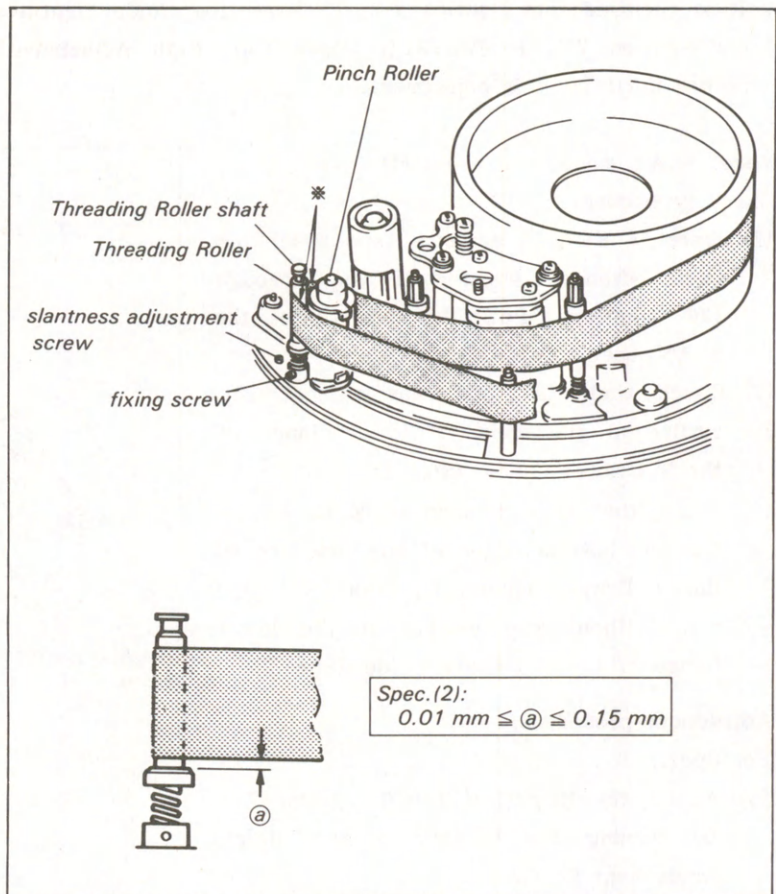
- (2) Adjust the slantness of the Threading Roller by turning the slantness adjustment screw.

NOTE:

- After adjustment, perform Section 7-6, REV Mode Tape Path Adjustment and Section 7-7, Tape Path Adjustment Around The Pinch Roller.

For Spec.2

- (3) Adjust the height of the Threading Roller by turning the Threading Roller Shaft to meet the required specification.
- (4) Check that the slantness and the height meet the required specifications (1) and (2).
- (5) After adjustment, tighten the fixing screw of the Threading Roller and perform the check procedure.



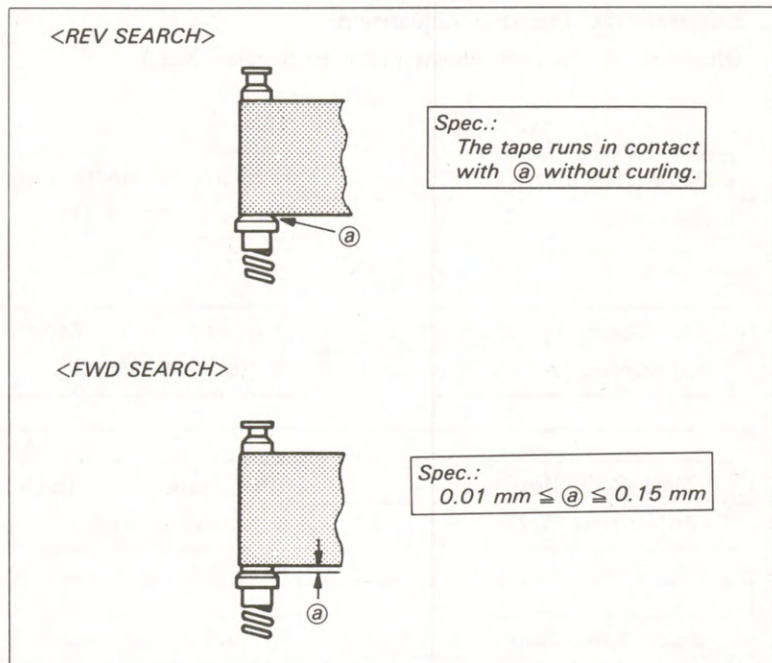
7-6. REV MODE TAPE PATH ADJUSTMENT

Check procedure:

- (1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes).
- (2) Put the unit into the REV SEARCH mode. Check that the tape runs in contact with the lower flange of the Threading Roller without curling.
- (3) Put the unit into the FWD SEARCH mode. Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification and the tape does not curl at the lower or upper flange of TG-4.

Adjustment procedure:

- (1) Fine adjust the height of the Threading Roller by turning the Threading Roller Shaft.
- (2) After adjustment, perform the Section 7-5, PLAY Mode Tape Path Adjustment (2).



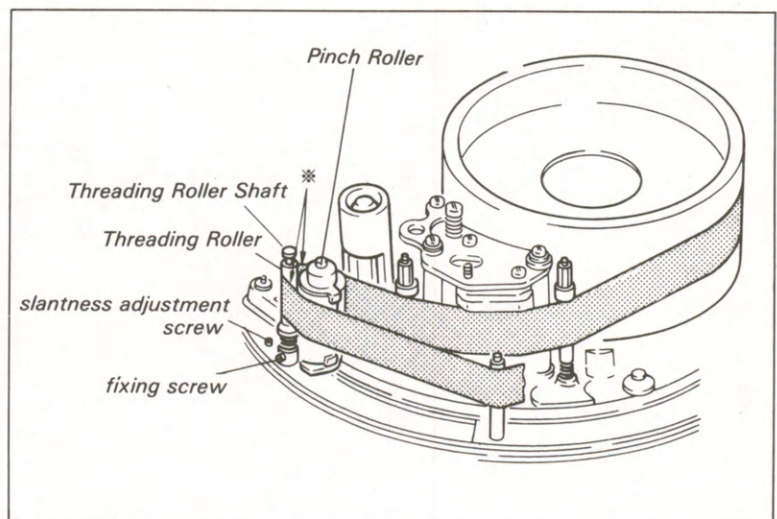
7-7. TAPE PATH ADJUSTMENT AROUND PINCH ROLLER

Check procedure:

- (1) Insert a KCA-60 cassette tape wound to the tape beginning portion.
- (2) When put the unit into the PLAY, REV SEARCH, FWD SEARCH modes, check that tape wrinkle does not appear, or disappear within 2 sec.

Adjustment procedure:

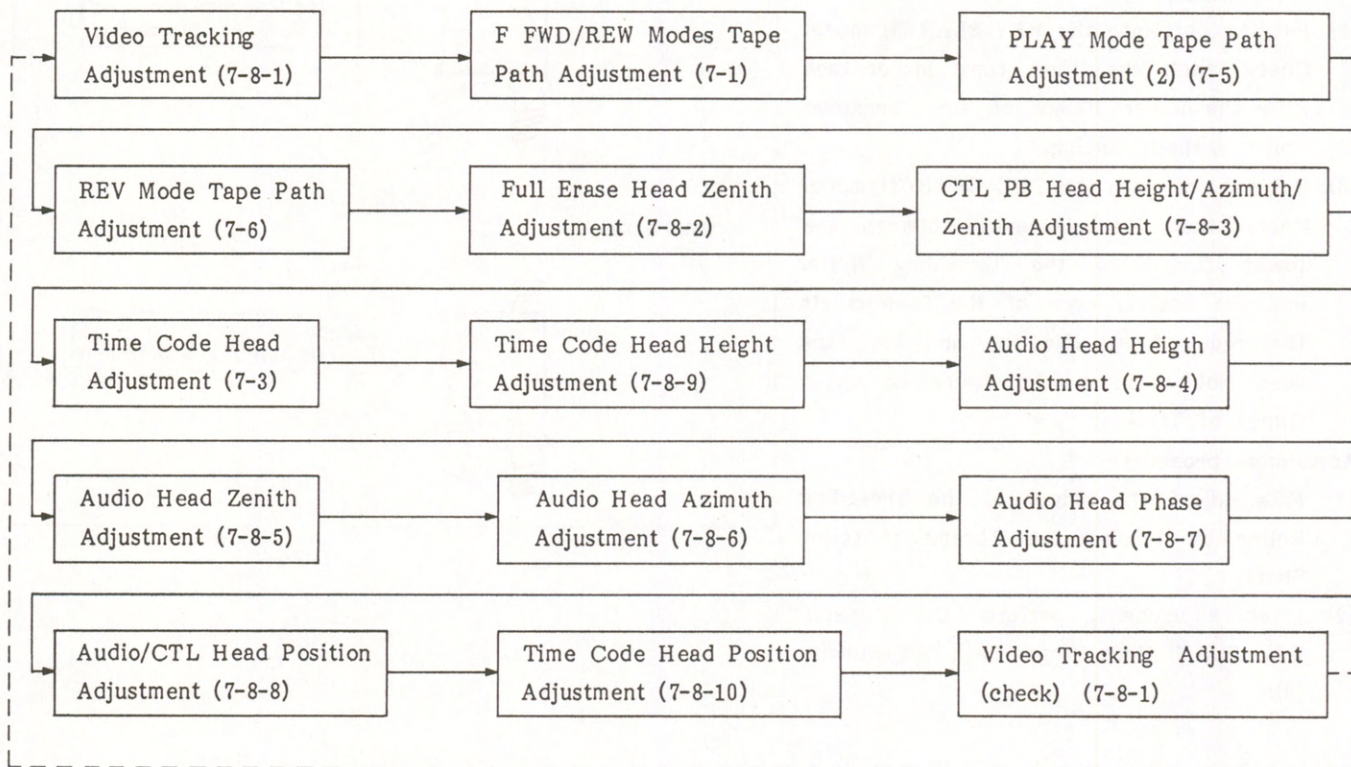
- (1) Adjust the slantness and height of the Threading Roller until it meets the required specification.
- (2) After adjustment, perform Section 7-5, PLAY Mode Tape Path Adjustment (2), Section 7-6, REV Mode Tape Path Adjustment, and Section 7-8, Tracking Adjustment.



7-8. TRACKING ADJUSTMENT

. Perform the Tracking Adjustment

(Numbers in the parenthesis refer to Section Nos.)



7-8-1. Video Tracking Adjustment

Tool: Alignment tape, RR2-1SD

Flatness plate

Oscilloscope

Dental mirror

Preparation:

- (1) Connect the oscilloscope to TP18 on the DM-69 Board and EXT. TRIG to TP12 on the SV-112 Board.
- (2) Playback the alignment tape.

Check procedure:

- (1) While turning the TRACKING control knob, check that the RF waveform maintains a flat envelope while the amplitude increases and decreases.
- (2) Check that fluctuation and head-to-tape contact of the RF envelope are within the specification at the center detent position of the TRACKING control knob.

Adjustment procedure:

. The S Drawer Roller Block has three adjustment screws. These three adjustment screws function as follows:

(i) Slantness adjustment screw (a)

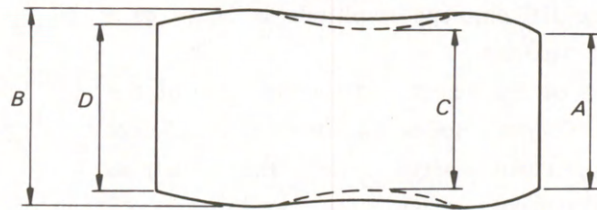
Turn this screw in the clockwise direction, and the S Drawer Roller slants in the direction of arrow A.

(ii) Slantness adjustment screw (b)

Turn this screw in the counterclockwise direction, and the S Drawer Roller slants in the direction of arrow B. This screw is used for removing tape curl at the upper flange of the S Drawer Roller. However, this screw is used only when the tape curls at the flange of the S Drawer Roller, even though the RF output waveform meets the required specification.

(iii) Height adjustment screw

Turn this screw in the clockwise direction, and the height of the S Drawer Roller lowers.

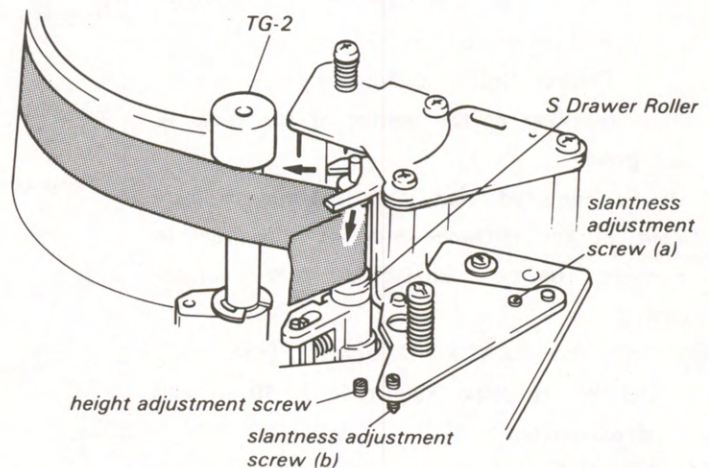


Spec.: <head to tape contact>

$$\frac{A}{B} \geq 0.70 \quad \frac{D}{B} \geq 0.70$$

<fluctuation>

$$\frac{C}{B} \geq 0.90$$



. When tape guides (TG-3, TG-4) are adjusted, loosen the locking screw about 1 turn and adjust the height by turning the height adjustment nut.

. When tracking at the entrance side of the drum is not good.

- (1) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80 % of maximum.
- (2) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope of the entrance side is flat.

NOTE:

(i) Check the surface of the running tape very carefully around the S Drawer Roller. Check that tape tension is equal at the top and bottom of the tape.

(ii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

. When tracking at the center of the drum is not good.

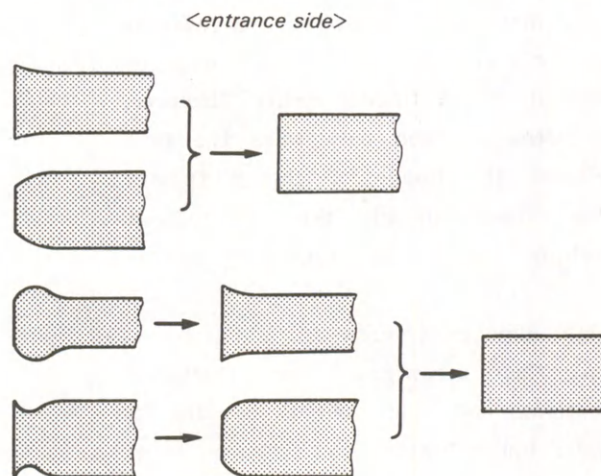
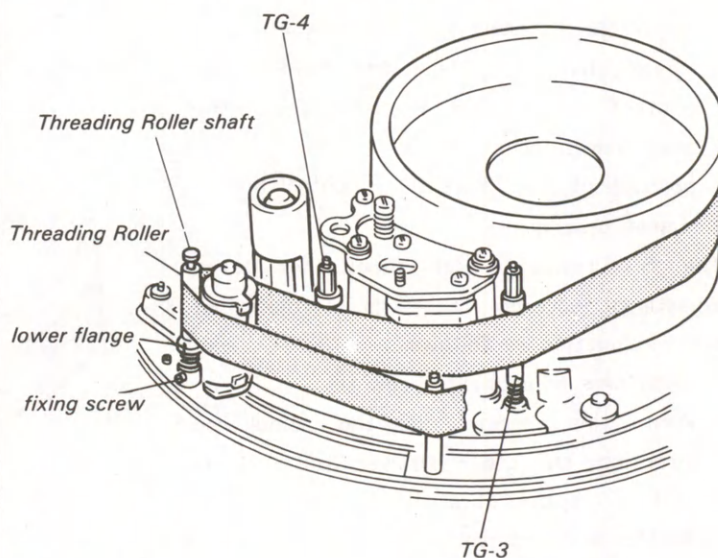
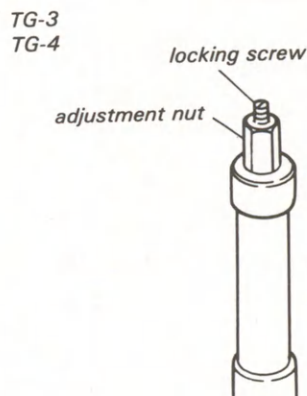
(It is required that the Tracking adjustment at the entrance side of the drum is correct before initiating this adjustment.)

- (3) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.
- (4) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope at the center of the drum is flat.

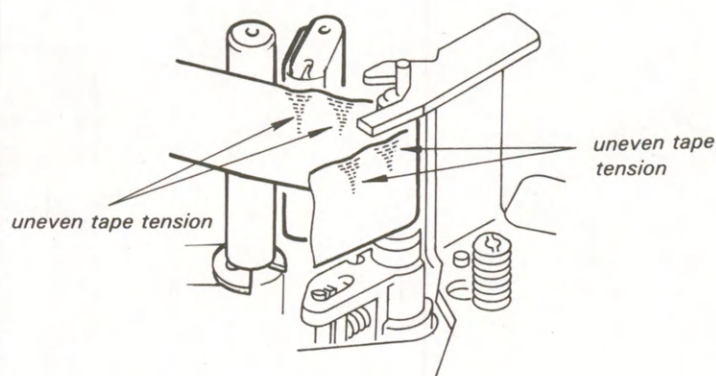
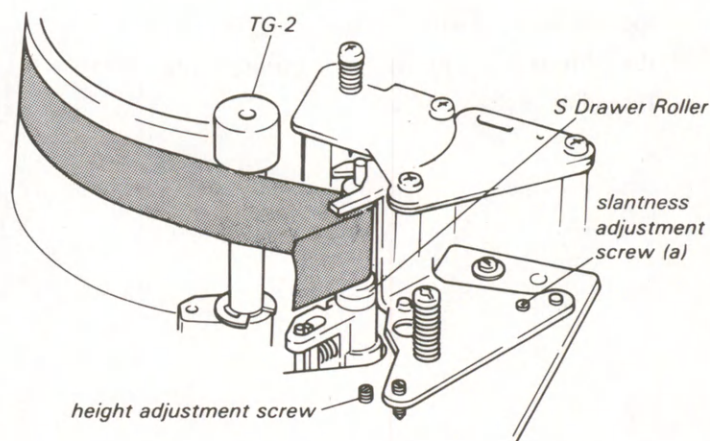
NOTE:

(i) Adjust the slantness adjustment screw (a) in the clockwise direction within a 10 degree angle.

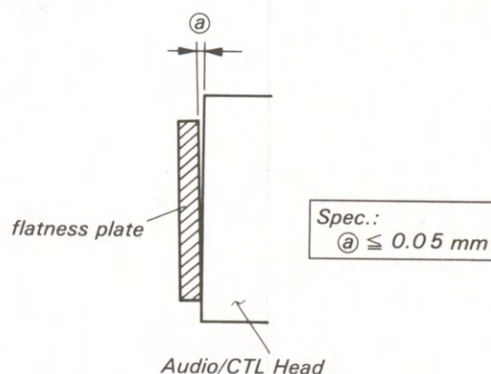
(ii) When the tracking of the center of the drum is adjusted, the FR envelope at the entrance side of the drum should remain flat.



- (iii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.
- (5) If the RF envelope is not flat in Step (4), adjust the height of TG-3 and TG-4.
- (6) If the RF envelope is not flat in Steps (4) and (5), adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.
- (7) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.
- . When loosen the fixing screw of the Threading Roller, press the STOP button. When the Threading Roller comes near the Sug-ring Stopper, turn the power OFF. Loosen the fixing screw of the Threading Roller with a L-shaped hexagonal wrench. After adjustment, tighten the fixing screw and check that it meet the required specification.
- . When tracking at the exit side of the drum is not good.
- (8) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.
- (9) If the RF envelope is not flat as shown in the figure 1, adjust the height of TG-4 until the RF envelope is flat. After this adjustment, adjust the height of TG-3 so that the tape runs in contact with the upper flange. If the RF envelope is not flat as shown in the figure 2, adjust the height of TG-3 and TG-4 until the RF envelope is flat. If it is not, adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.

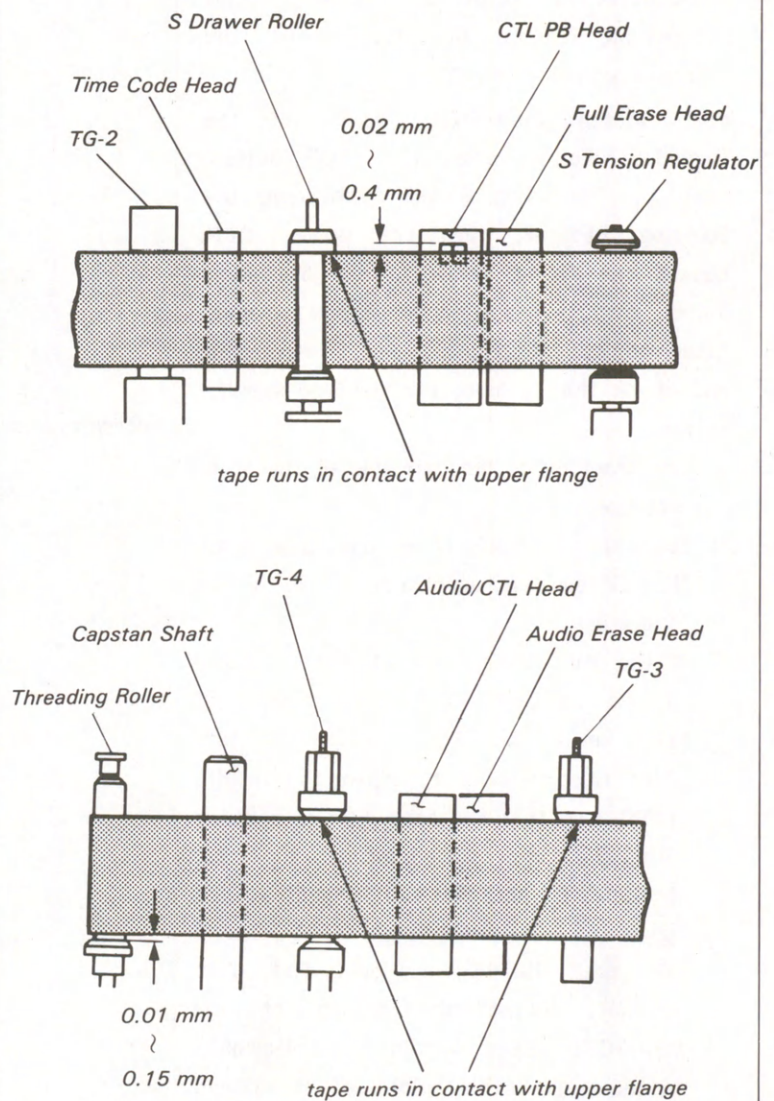
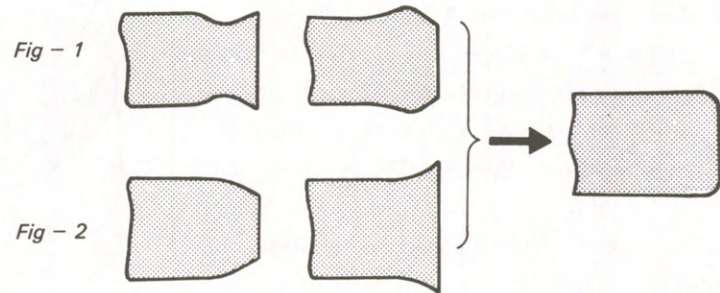


<zenith adjustment for the Audio/CTL Head>



- (10) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.

<exit side>



7-8-2. Full Erase Head Zenith Adjustment

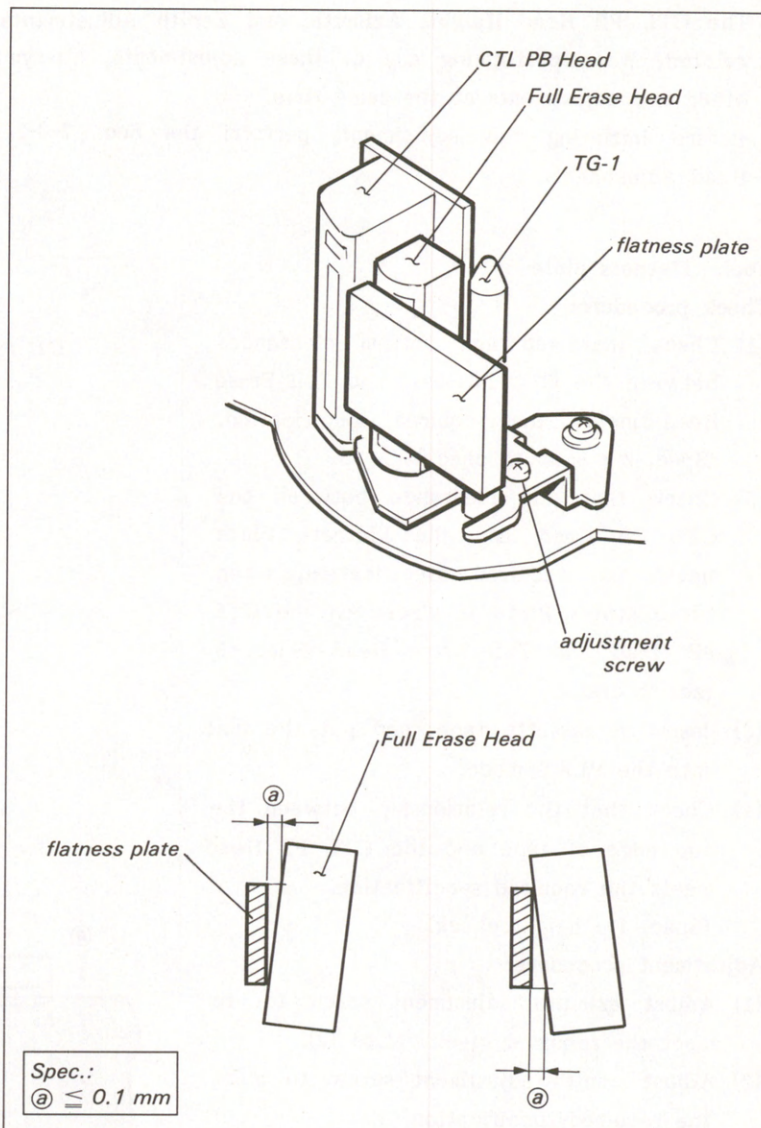
Tool: Flatness plate

Check procedure:

- (1) Check that the clearance between the Full Erase Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the Full Erase Head and TG-1.

Adjustment procedure:

- (1) Turn the adjustment screw in the clockwise or counterclockwise direction to meet the required specification.



7-8-3. CTL PB Head Height/Azimuth/Zenith Adjustments

- The CTL PB Head Height, Azimuth, and Zenith Adjustments are closely related. When performing any of these adjustments, always perform the other two adjustments at the same time.
- Before initiating this adjustment, perform the Sec. 7-8-2. Full Erase Head Adjustment.

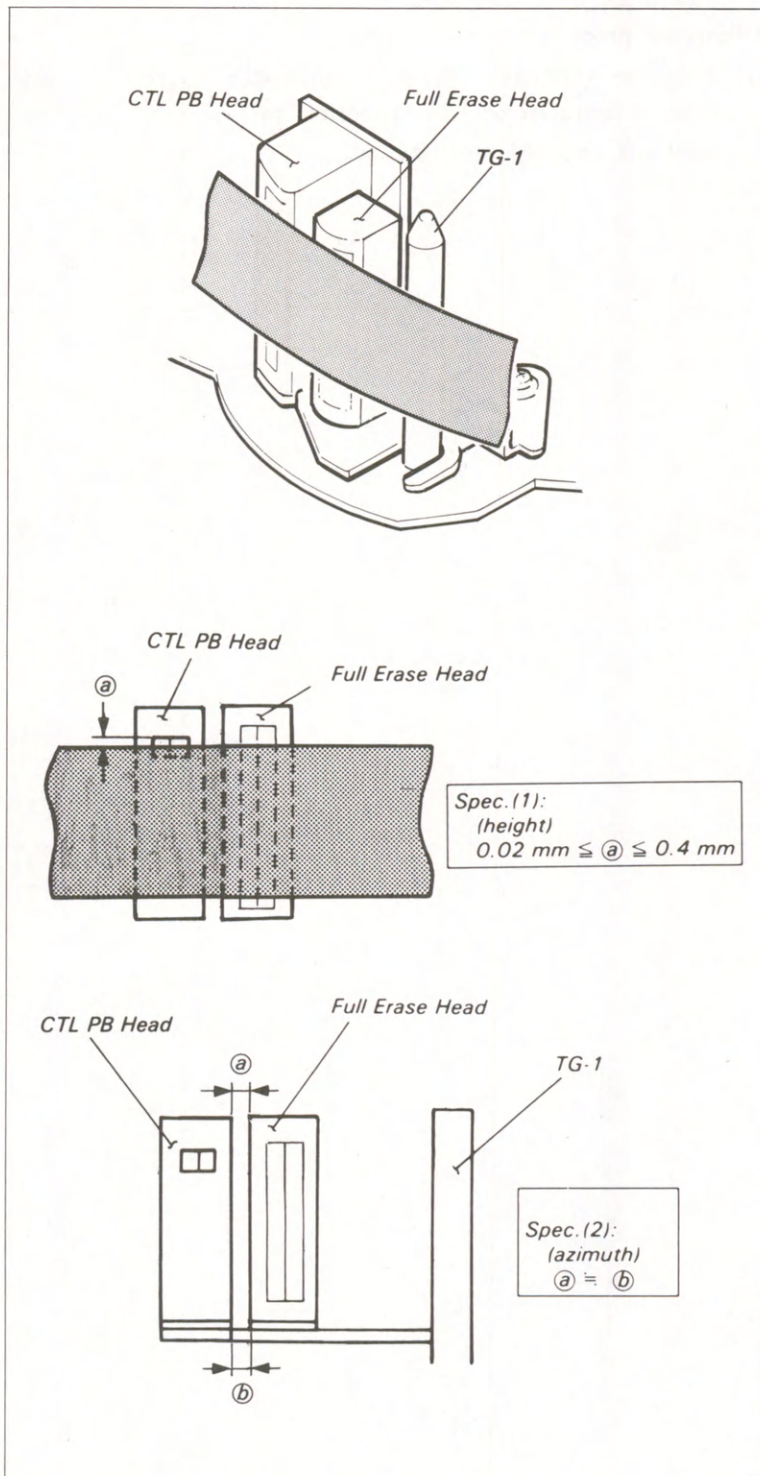
Tool: Flatness plate

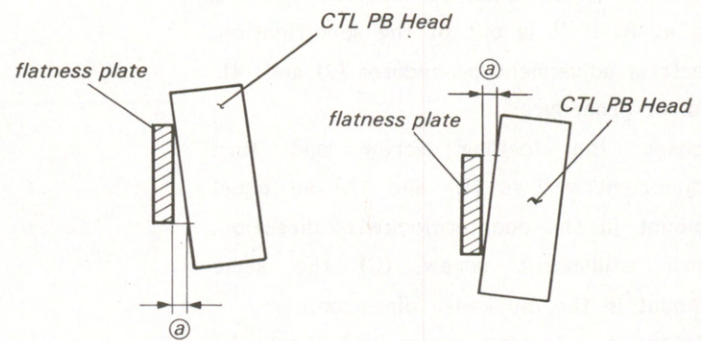
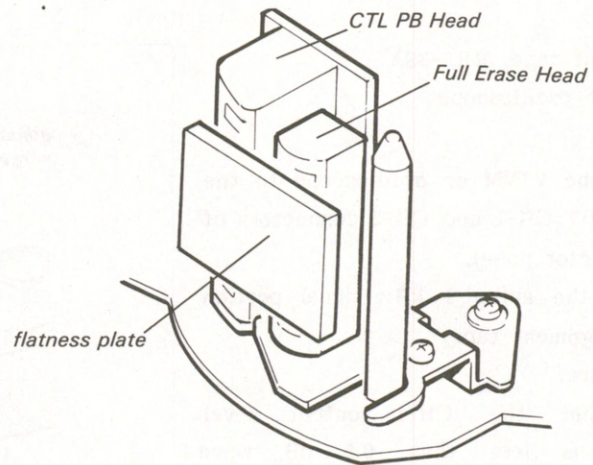
Check procedure:

- (1) Check that top and bottom clearances between the CTL PB Head and Full Erase Head meets the required specification. (Spec. 2 : azimuth check)
- (2) Check that the clearance between the CTL PB Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the CTL PB Head and Full Erase Head (Spec. 3 :zenith check)
- (3) Insert a cassette tape, and put the unit into the PLAY mode.
- (4) Check that the relationship between the top edge of tape and the CTL PB Head meets the required specification. (Spec. 1 : height check)

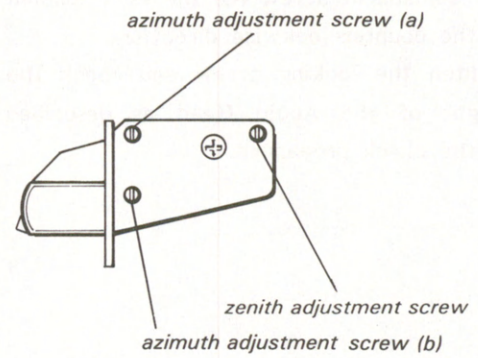
Adjustment procedure:

- (1) Adjust azimuth adjustment screw (a) to meet the required specification (2).
- (2) Adjust zenith adjustment screw to meet the required specification (3).
- (3) Turn the three adjustment screws an equal amount in the clockwise or counterclockwise direction to meet the required specification (1).





Spec. (3):
(zenith)
 $a \leq 0.1 \text{ mm}$



7-8-4. Audio Head Height Adjustment

Tool: Alignment tape, RR5-3SA
VTVM or oscilloscope

Preparation:

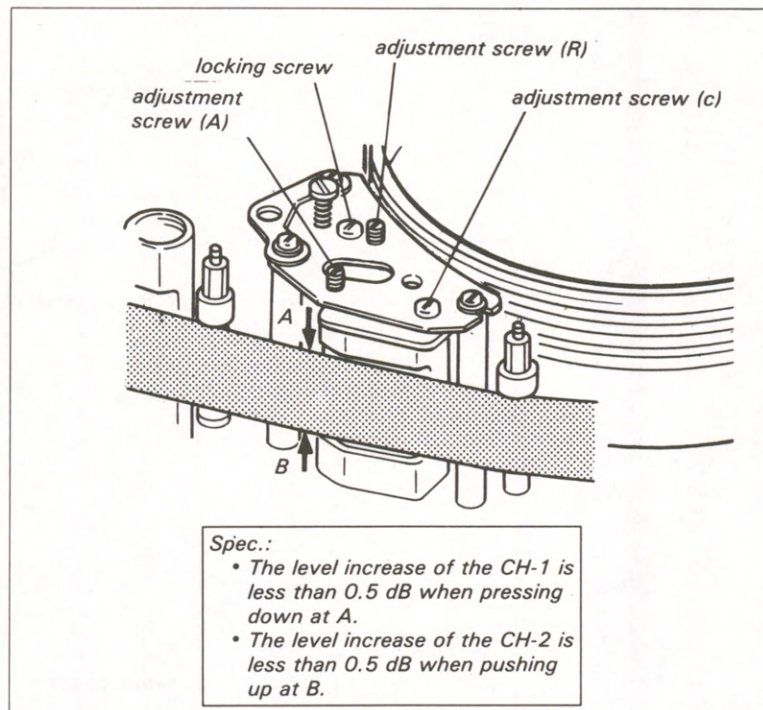
- (1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.
- (2) Playback the audio 1 kHz signal portion of the alignment tape.

Check procedure:

- (1) Check that the CH-1 output level increase is less than 0.5 dB when pressing down at A. If it is out of the specification, perform adjustment procedures (1) and (2).
- (2) Check that the CH-2 output level increase is less than 0.5 dB when pushing up at B. If it is out of the specification, perform adjustment procedures (3) and (4).

Adjustment procedure:

- (1) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the counterclockwise direction. Turn adjustment screw (C) the same amount in the clockwise direction.
- (2) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.
- (3) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the clockwise direction. Turn the adjustment screw (C) the same amount in the counterclockwise direction.
- (4) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.



7-8-5. Audio Head Zenith Adjustment

Tool: Flatness plate

Check procedure:

- (1) When the Flatness Plate is set on the Audio Head and TG-3, check that the clearance between the Audio Head and the Flatness Plate meets the required specification.

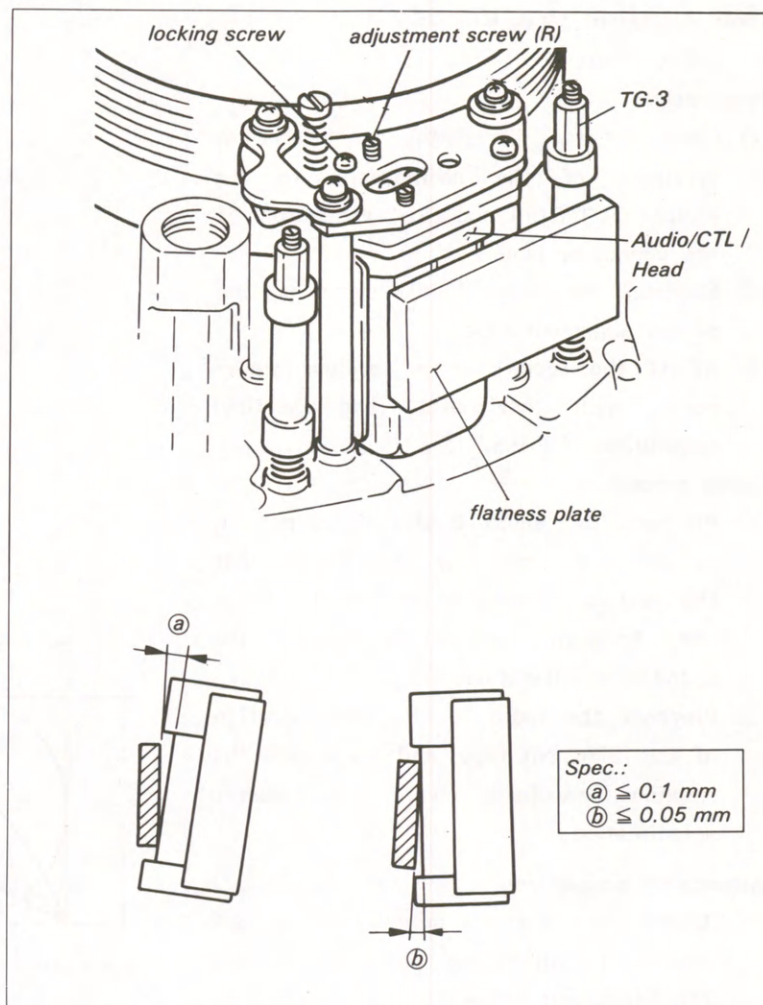
Adjustment procedure:

. When the clearance is out of spec. at the top of the Audio Head.

- (1) Turn adjustment screw (R) in the counterclockwise direction.
- (2) Tighten the locking screw and check the zenith again.

. When the clearance is out of spec. at the bottom of the Audio Head.

- (3) Loosen the locking screw 1/4 to 1/2 turn.
- (4) Turn adjustment screw (R) in the clockwise direction.
- (5) Tighten the locking screw and check the zenith again.



7-8-6. Audio Head Azimuth Adjustment

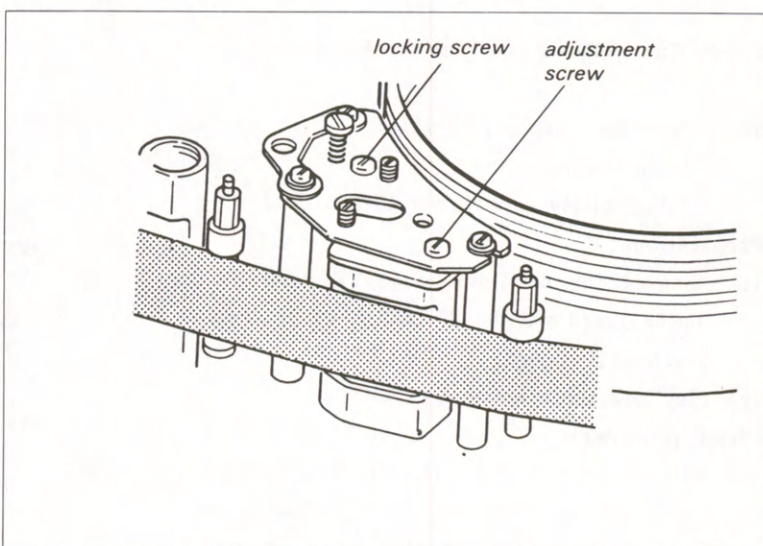
Tool: Alignment tape, RR5-3SA
VTVM or oscilloscope

Preparation:

- (1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 or CH-2 connector of the connector panel.
- (2) Playback the audio 10 kHz signal portion of the alignment tape.

Adjustment procedure:

- (1) Loosen the locking screw and adjust the audio output level to maximum by turning the adjustment screw.
- (2) Tighten the locking screw and perform the check procedure.



7-8-7. Audio Head Phase Adjustment

Tool: Alignment tape, RR5-3SA

Oscilloscope

Preparation:

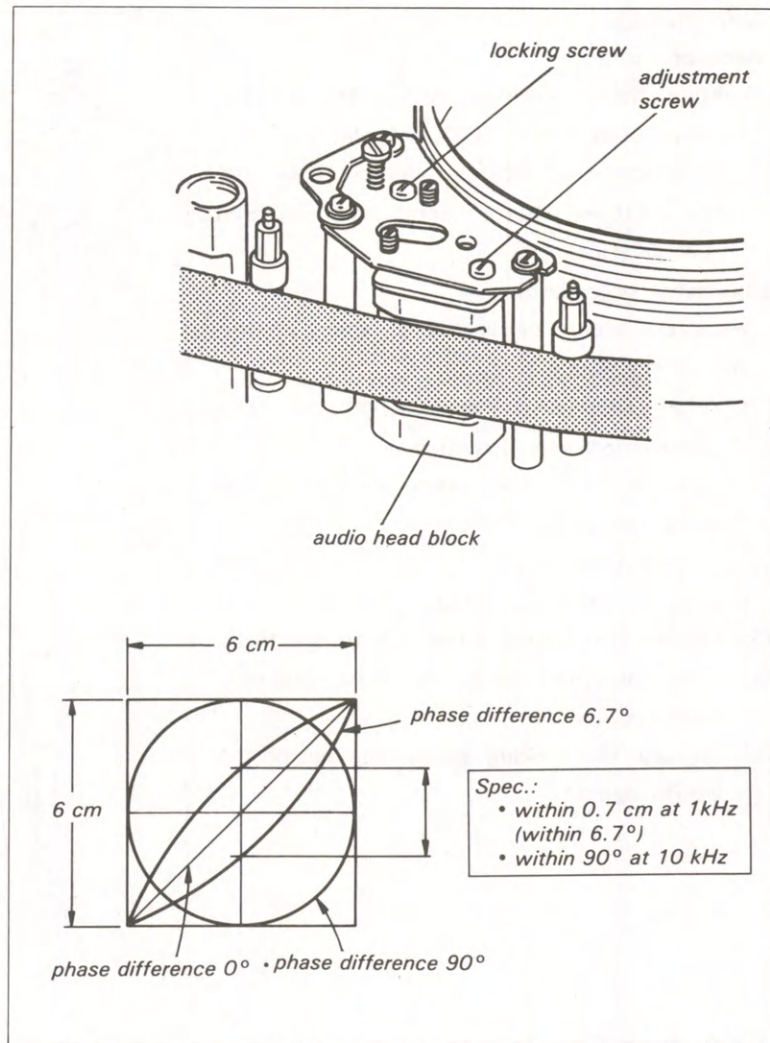
- (1) Connect the horizontal and vertical terminals of the oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.
- (2) Playback the audio 1 kHz signal portion of the alignment tape.
- (3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6 cm.

Check procedure:

- (1) Playback the audio 1 kHz signal portion of the alignment tape, and check that the vertical amplitude at the center in the horizontal direction meets the required specification.
- (2) Playback the audio 10 kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

Adjustment procedure:

- (1) Loosen the locking screw 1/4 to 1/2 turn and adjust the phase by turning the adjustment screw.
- (2) Tighten the locking screw and check the phase again.



7-8-8. Audio/CTL Head Position Adjustment

Tool: Alignment tape, RR2-1SD

Oscilloscope

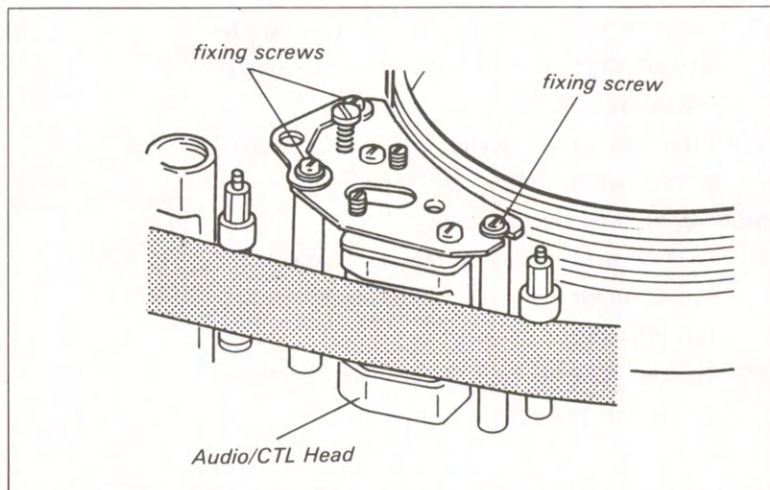
Eccentricity screwdriver (5 mm dia.)

Preparation:

- (1) Connect the oscilloscope to TP18 on the DM-69 Board and the EXT.TRIG to TP12 on the SV-112 Board.
- (2) Playback the alignment tape.

Check procedure:

- (1) While turning the TRACKING control knob, check that the RF envelope has maximum amplitude at the center detent position of the TRACKING control knob.



7-8-9. Time Code Head Height Adjustment

Tool: Alignment tape, RR5-1SD

Oscilloscope

Preparation:

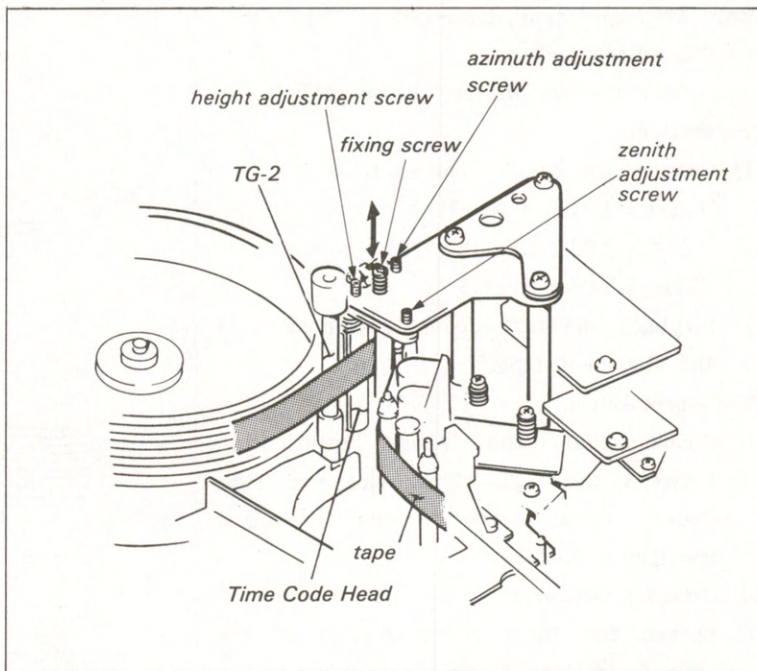
- (1) Connect the oscilloscope to TP405 on the NR-31 Board.
- (2) Playback the time code signal portion of the alignment tape.

Check procedure:

- (1) Check that the level increase is less than 0.5 dB when lightly pressing down or pushing up the fixing screw by hand.

Adjustment procedure:

- (1) Loosen the fixing screw 1/4 to 1/2 turn.
• The level increase is more than 0.5 dB when pushing up the fixing screw.
- (2) Turn the three adjustment screws (Height, Azimuth and Zenith) an equal amount in the counterclockwise direction.
• The level increase is more than 0.5 dB when pressing down the fixing screw
- (3) Turn the three adjustment screws an equal amount in the clockwise direction.
- (4) Tighten the fixing screws and perform the check procedure.
- (5) After adjustment, perform following adjustments:
Sec.7-3-1. Time Code Head Zenith Adjustment
Sec.7-3-2. Time Code Head Azimuth Adjustment



7-8-10. Time Code Head Position Adjustment

Tool: Alignment tape, RR5-1SD

Oscilloscope

Eccentric screwdriver (5 mm dia.)

Preparation:

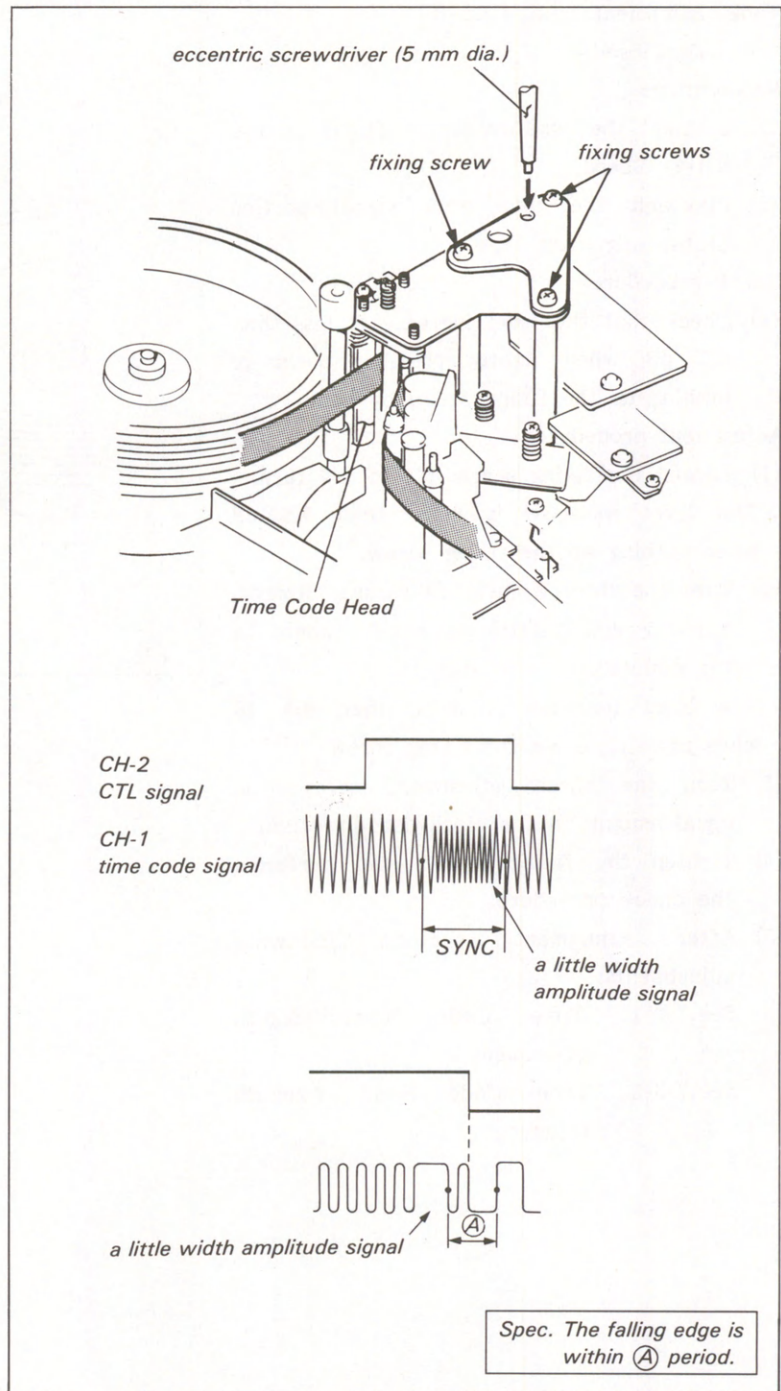
- (1) Connect the oscilloscope as follows.
CH-1 : TP405 / NR-31
CH-2 : TP4 / SV-112
TRIG : TP4 / SV-112
- (2) Playback the time code signal portion of the alignment tape.

Check procedure:

- (1) Check that the phase relationship between the CTL signal and the Time Code signal meets the required specification.

Adjustment procedure:

- (1) Loosen the three fixing screws of the Time Code Head Block $1/4$ to $1/2$ turn.
- (2) Adjust the position of the Time Code Head Block with an eccentric screwdriver to meet the required specification.



7-9. VIDEO HEAD DIHEDRAL ADJUSTMENT

Tool: Dihedral adjustment screwdriver

Alignment tape, RR5-3SA

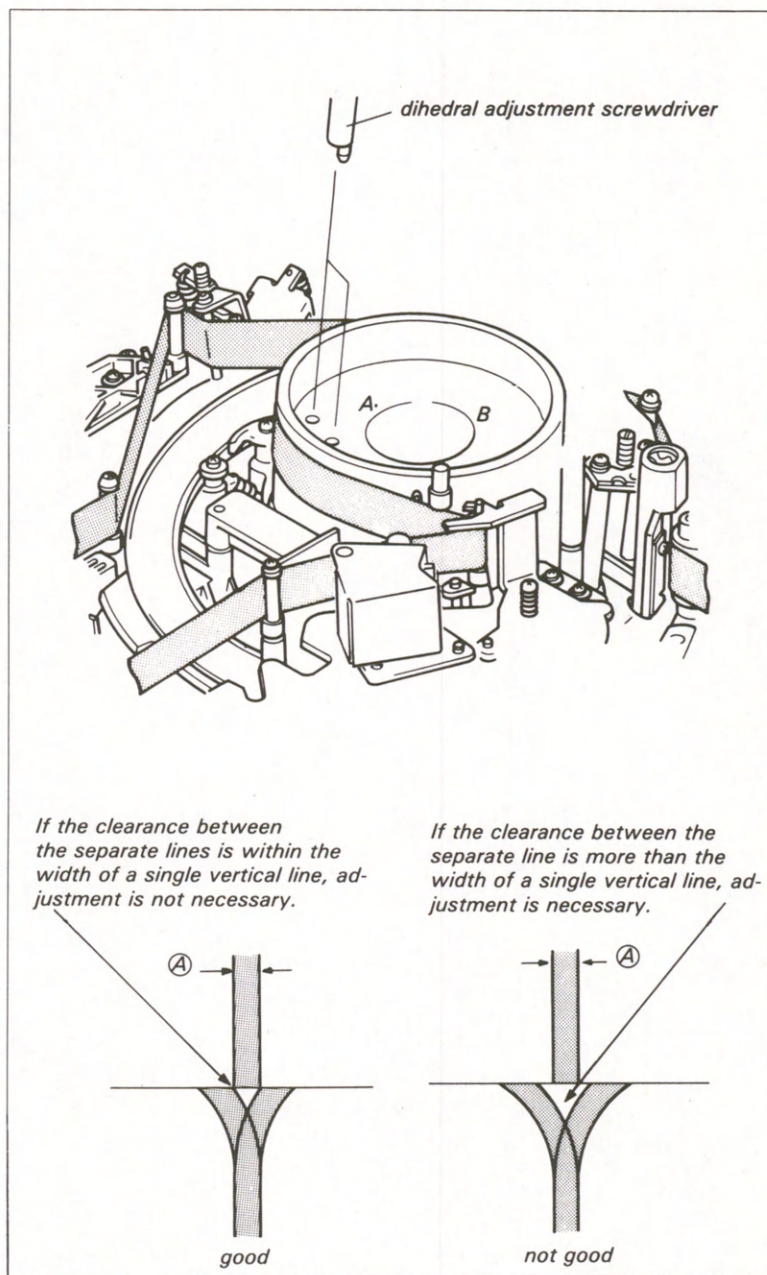
Monitor TV

Check procedure

- (1) Playback the monoscope signal portion of the alignment tape.
- (2) Check the distortion of the monoscope signal under the switching pulse. If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary. If the clearance of the separate lines is more than the width of a vertical line, then adjustment is necessary.

Adjustment procedure:

- (1) Insert an eccentric screwdriver into the adjustment hole of the white lead and perform the dihedral adjustment.
- (2) Play back the monoscope signal portion. If the distortion has become worse, insert an eccentric screwdriver in the other adjustment hole and perform the dihedral adjustment.



SECTION 8

SYSTEM CONTROL ALIGNMENT

[Equipment Required]

- DC Voltmeter.
- Blank Tape.

8-1. TAPE SENSOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the cassette tape. • STOP mode	TP4/SY-141(J-1) $6.0 \pm 0.2V_{dc}$	●RV1/SY-141(J-1)

8-2. REEL MOTOR STILL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect the DC volt meter to the reel motor terminal(orange)and the chassis of the reel chassis block. • Set to the PLAY-PAUSE mode without the cassette tape.	$0.4 \pm 0.02V_{dc}$	●RV4/SY-141(K-1) (Adjust after the reel stops.)

NOTE : Refer to Sec. 6-2 and 6-3 for the adjustment of RV2 and RV3/SY-141.

SECTION 9

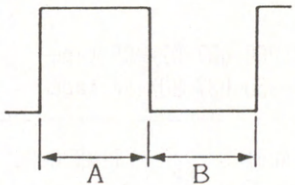
SERVO SYSTEM ALIGNMENT

[Equipment Required]

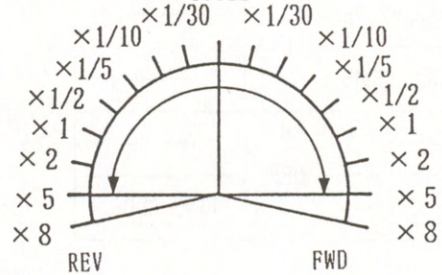
- Dual Trace Oscilloscope.
- Video Monitor
- Blank Tape : KSP-60
- Alignment Tape : RR2-1SD (Part No. 8-960-037-02) -SP tape-
- Alignment Tape : RR5-1SD (Part No. 8-960-037-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	_____	OFF	_____
3	Gated sweep (B/W)	1kHz, 0dB		_____
3	Gated sweep (color)	10kHz, -10dB		_____
3	Pulse & Bar (color)	1kHz, -20dB		_____
		40Hz, -20dB		_____
		7kHz, -20dB		_____
		10kHz, -20dB		_____
		15kHz, -20dB		_____
2	Pulse & Bar (B/W)	1kHz, -20dB	ON	_____
		15kHz, -20dB		_____
2	Monoscope (color)	_____	OFF	_____
2	Pseudo color bars	_____		TIME CODE

9-1. CAPSTAN FREE SPEED ADJUSTMENT

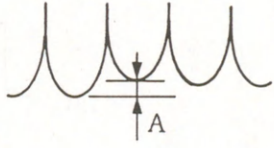
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP3/SV-112(G-5)  $A = B \pm 5\%$ (Take reading at the center of jitter.)	●RV100/SV-112(F-6) TRIG : INT

9-2. CAPSTAN 1/30 SPEED ADJUSTMENT

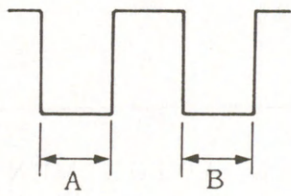
machine conditions for adjustment	specifications	adjustments
• Short between TP11/SY-141(H-1) and E1/SY-141(A-7) with a shorting clip. • Play back the color-bar segment of the alignment tape RR5-1SD. • SEARCH mode • Turn the SEARCH dial to the optional position except for FWD×8.	TP27/SV-112(F-4) $60 \pm 5\text{Hz}$ SEARCH dial STILL 	●RV101/SV-112(G-4) TRIG : INT

NOTE : Do not remove the shorting clip on the SY-141 board till indicated.

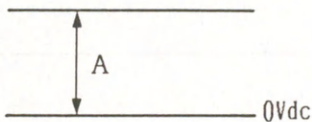
9-3. CAPSTAN STOP SERVO ADJUSTMENT (1)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Short between TP16/SV-112(H-4) and TP19/SV-112(H-4) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	TP21/SV-112(H-3)  $A \leq 0.04V$	RV106/SV-112(J-4) TRIG : INT

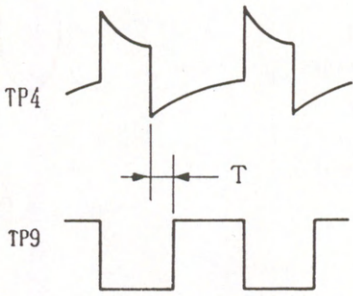
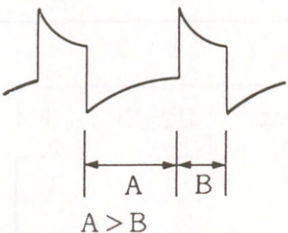
9-4. CAPSTAN STOP SERVO ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP25/SV-112(F-4)  $A = B \pm 10\%$	RV201/SV-112(J-5) TRIG : INT

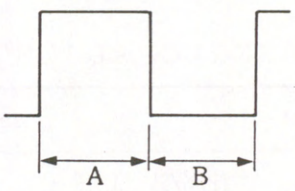
9-5. CAPSTAN STOP SERVO ADJUSTMENT (3)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • PLAY-PAUSE mode • Short between TP6/SV-112(K-3) and TP22/SV-112(H-3) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	TP26/SV-112(E-6)  $A = 1.0 \pm 0.1Vdc$	RV107/SV-112(H-5) TRIG : INT

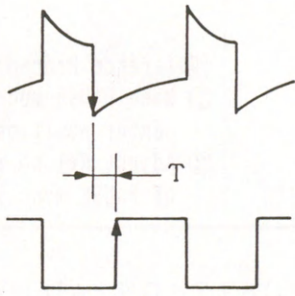
9-6. TRACKING CONTROL MULTI AND CTL POLARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Set the TRACKING control to the center click position. - Play back the color-bar segment of the alignment tape RR5-1SD.	TP4/SV-112(L-6) TP9/SV-112(L-5) Step 1  $T = 0 \pm 100 \mu\text{sec}$ (Take reading at the center of jitter.) Step 2  $A > B$	RV406/SV-112(G-7) TRIG : TP9/SV-112(L-5)

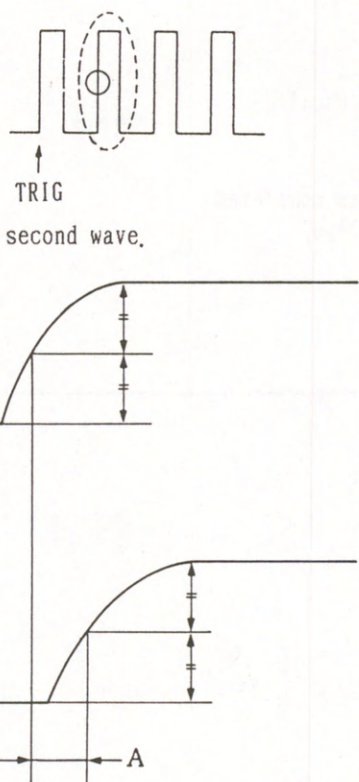
9-7. DRUM FREE SPEED ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD.	TP15/SV-112(E-7)  $A = B \pm 5\%$	RV402/SV-112(N-6) TRIG : INT

9-8. INSTANT START ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Set the TRACKING control to the center click position. - Play back the color-bar segment of the alignment tape RR5-1SD. - SEARCH mode - Turn the SEARCH dial to the FWD×8 position. (Refer to the Sec.9-2 CAPSTAN 1/30 SPEED ADJUSTMENT.) - After the adjustment is completed, remove the shorting clip on the SY-141 board.	TP4/SV-112 (L-6) TP9/SV-112 (L-5)  $T = 0 \pm 1 \text{ msec}$ (Take reading at the center of jitter.)	RV102/SV-112 (H-7) TRIG : TP9/SV-112 (L-5)

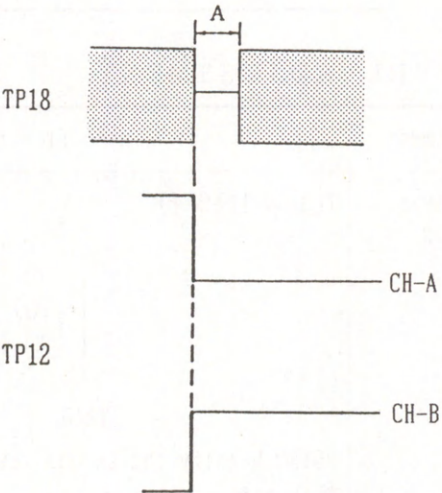
9-9. DRUM AFC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Play back the color-bar segment of the alignment tape RR5-1SD. - PLAY and PAUSE modes	TP8/SV-112 (M-6)  NOTE: Magnify the second wave. PLAY mode PAUSE mode $A = 0 \pm 0.1 \mu\text{sec}$	RV2/SV-112 (G-7) (If it is difficult to catch the wave, adjust at TRACKING.) TRIG : INT

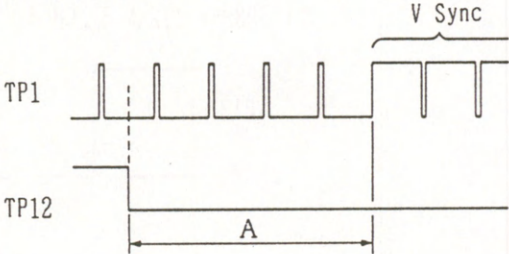
9-10. DRUM AFC TRANSIENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • PLAY and PAUSE modes	TP17/SV-112(D-7) difference between PLAY mode and PAUSE mode $0 \pm 0.1\text{Vdc}$ [Reference Procedure] ① When PAUSE mode, set the wave of TP17 to the center position of oscilloscope by DC. ② Adjust RV1 so as to set to the same position of PAUSE mode in five seconds when PLAY mode.	●RV1/SV-112(F-7) TRIG : INT

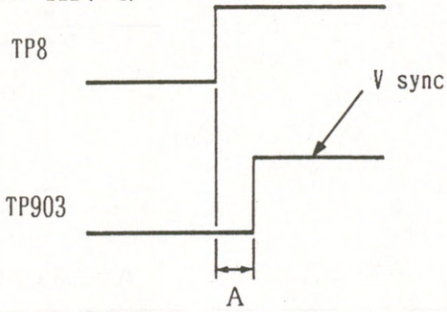
9-11. SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP5/SV-112(M-7), TP8/SV-112(M-6) and GND with shorting clips. • Play back the alignment tape RR2-1SD. • Adjust the TRACKING volume so that the RF output wave can be maximum. Step 2. • Change the trigger of oscilloscope to (+) and (-). • After the adjustment is completed, remove the shorting clips.	TP18/DM-69(C-8) TP12/SV-112(C-7)  $A \leq 10\mu\text{sec}$	CH-A : ●RV405/SV-112(J-7) CH-B : ●RV404/SV-112(M-6) TRIG : TP12/SV-112(C-1)

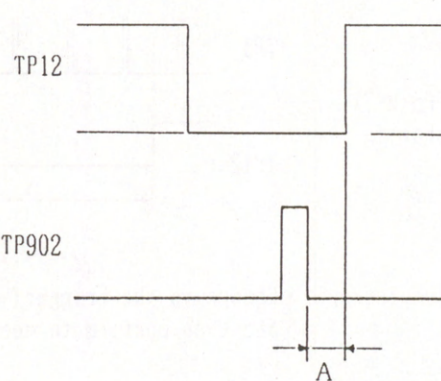
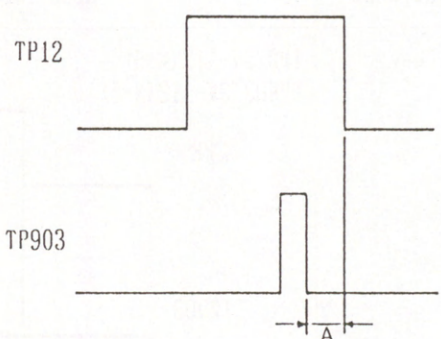
9-12. DRUM LOCK PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector: color-bar • INPUT SELECT SW: LINE • Insert the KSP-60 tape. • Short between TP8 (M-6), TP5 (M-7) and E3 (N-7)/SV-112 with shorting clips. • REC mode • After the adjustment is completed, remove the shorting clips.	TP1/SV-112 (N-5) TP12/SV-112 (C-7)  $A = 2.25 \pm 0.2H$ • Change to the trigger(-) side of oscilloscope, and then confirm to meet the specification.	RV402/SV-112 (N-7) TRIG : TP12/SV-112 (C-7)

9-13. REC VD ADJUSTMENT

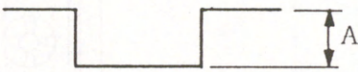
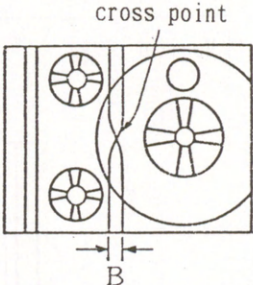
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : color-bar • INPUT SELECT SW : LINE • Insert the KSP-60 tape. • REC mode	TP8/SV-112 (M-6) TP903/SV-112 (N-5)  $A = 0 \pm 5\mu\text{sec}$ (Take reading at the center of jitter.)	RV900/SV-112 (N-6)

9-14. ROTARY ERASE MUTE PULSE ADJUSTMENT

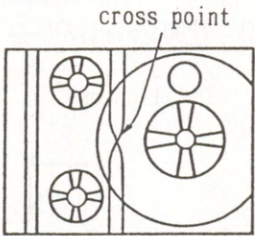
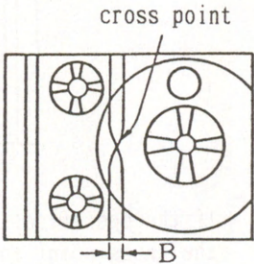
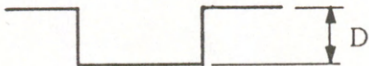
machine conditions for adjustment	specifications	adjustments
• Play back the pseudo color-bar segment of the alingment tape RR5-1SD.	CH-1 : TP12/SV-112 (C-7) CH-2 : TP902/SV-112 (E-1), CH-A TP903/SV-112 (N-5), CH-B CH-A  CH-B  $A = 2.3 \pm 0.05 \text{ msec}$	CH-A : ●RV854/SV-112 (F-2) CH-B : ●RV853/SV-112 (F-2) TRIG : CH-1

9-15. PICTURE SPLITTING COMPENSATOR ADJUSTMENT

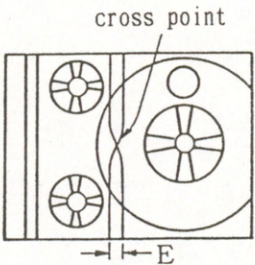
Step 1.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope (B/W) • Set the KCA or KCS cassette tape. • REC mode • After the adjustment is completed, record continuously.	TP904/SV-112 (C-2) Oscilloscope  Minimize the A level.	RV851/SV-112 (C-2)
• Connect with the clip cord (with capacitor) between TP905/SV-112 (H-7) and E3/SY-112 (N-7). • Play back the self recorded tape.	Monitor  If the specification is not satisfied, confirm the cross point and perform the Step 2 and 3.	

Step 2.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope (B/W) • Play back the self recorded tape.	Monitor  1. Turn RV851/SV-112 (C-2) temporarily and make the cross point large. 2. Set the cross point to the position checked in the Step 1.	RV850/SV-112 (B-2)
	Monitor  Minimize B. NOTE : Check the level of TP904/SV-112 (C-2). This level is C Vp-p.	RV851/SV-112 (C-2)
	TP904/SV-112 (C-2)  $D = \frac{1}{2} C V_{p-p}$	RV851/SV-112 (C-2)

Step 3.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope (B/W) • Set the KCA or KSP cassette tape. • Play back the self recorded tape again. • After the check is completed, remove the track control delay jig (clip cord with capacitor).	Monitor  The diagram shows a rectangular frame representing a monitor screen. Inside, there are three circular patterns resembling sprocket holes or tape reels. A vertical line passes through the center of the rightmost circle. A horizontal line segment, labeled 'E', is positioned below the circles, starting from the vertical line and extending to the right. A label 'cross point' with a line pointing to the intersection of the vertical and horizontal lines is located above the diagram. $E \leq 0.5 \mu\text{sec}$	

- If the specification is not satisfied, readjust Step 1 and 2.

SECTION 10

AUDIO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- AC Voltmeter.
- Audio Attenuator.
- Blank Tape : KCA, KCS and KSP. (When adjusting, use KCA and KCS unless otherwise specifically indicated.)
- Alignment Tape : RR5-1SD (Part No. 8-960-037-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	_____	OFF	_____
3	Gated sweep (B/W)	1kHz, 0dB		_____
3	Gated sweep (color)	10kHz, -10dB		_____
3	Pulse & Bar (color)	1kHz, -20dB		_____
		40Hz, -20dB		_____
		7kHz, -20dB		_____
		10kHz, -20dB		_____
		15kHz, -20dB		_____
2	Pulse & Bar (B/W)	1kHz, -20dB	ON	_____
		15kHz, -20dB		_____
2	Monoscope (color)	_____	OFF	_____
2	Pseudo color bars	_____		TIME CODE

[NOTE]

- 0dBu=0.775Vrms

[Switch Setting]

Front Panel

- AUDIO LIMITER SW OFF

Do not move this switch unless otherwise specified.

10-1. EE LEVEL ADJUSTMENT

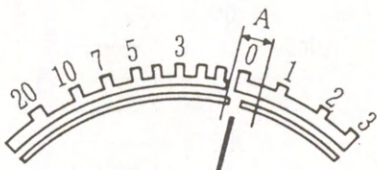
machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - EE mode	CH-1 : TP13/NR-31 (A-1) CH-2 : TP113/NR-31 (E-1) GND : E11/NR-31 (D-1) $-10.0 \pm 0.2 \text{ dBu}$	- CH-1 AUDIO LEVEL control - CH-2 AUDIO LEVEL control

NOTE : This position should not be moved till the Audio System Alignment is completed.

10-2. EE LINE OUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - EE mode	AUDIO LINE OUT CH-1, CH-2 (terminated by 600Ω) $+4.0 \pm 0.3 \text{ dBm}$	CH-1 : ⌚RV11/NR-31 (A-1) CH-2 : ⌚RV111/NR-31 (B-1)

10-3. AUDIO LEVEL METER ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - EE mode	AUDIO LEVEL meter  $A = 0 \pm 0.5 \text{ dB}$	CH-1 : ⌚RV51/AU-124 (C-5) CH-2 : ⌚RV251/AU-124 (C-5)

10-4. LIMITER LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- MIC IN CH-1, CH-2 : 1kHz, -30dBu - EE mode - AUDIO LIMITER SW : ON	AUDIO LINE OUT CH-1, CH-2 (terminated by 600Ω) $+7.0 \pm 0.3 \text{ dBm}$	CH-1 : ⌚RV1/AU-124 (D-3) CH-2 : ⌚RV201/AU-124 (D-3)

10-5. ALIGNMENT TAPE PB FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments												
• Play back the audio frequency response segment of the alignment tape RR5-1SD.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ±3dB</td></tr><tr><td>1 kHz</td><td>0 dB (REF)</td></tr><tr><td>7 kHz</td><td>0 ±0.5dB</td></tr><tr><td>10 kHz</td><td>0 ^{+0.4}_{-0.6} dB</td></tr><tr><td>15 kHz</td><td>0 ^{+0.4}_{-1.0} dB</td></tr></table>	Frequency	Level	40 Hz	0 ±3dB	1 kHz	0 dB (REF)	7 kHz	0 ±0.5dB	10 kHz	0 ^{+0.4} _{-0.6} dB	15 kHz	0 ^{+0.4} _{-1.0} dB	CH-1: • 7kHz Level ⌚RV102/AU-124 (J-5) • 15kHz Level ⌚RV103/AU-124 (J-4) ⌚RV154/AU-124 (J-5) CH-2: • 7kHz Level ⌚RV302/AU-124 (H-5) • 15kHz Level ⌚RV303/AU-124 (H-3) ⌚RV354/AU-124 (H-6)
Frequency	Level													
40 Hz	0 ±3dB													
1 kHz	0 dB (REF)													
7 kHz	0 ±0.5dB													
10 kHz	0 ^{+0.4} _{-0.6} dB													
15 kHz	0 ^{+0.4} _{-1.0} dB													

10-6. ALIGNMENT TAPE PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD.	CH-1 : TP13/AU-124 (A-1) CH-2 : TP113/AU-124 (E-1) -10.0 ±0.2dBu	CH-1 : - RV104/AU-124 (J-3) CH-2 : - RV304/AU-124 (J-3)

10-7. ALIGNMENT TAPE PB LINE OUT LEVEL CHECK

machine conditions for adjustment	specifications	adjustments
Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +4.0 ±0.5dBm	

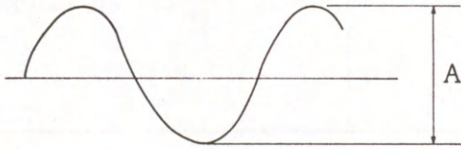
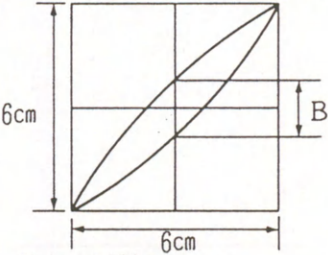
10-8. DOLBY DETECT DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• STOP mode	CH-1 : between TP314/NR-31 (M-1) and TP315/NR-31 (M-1) CH-2 : between TP316/NR-31 (N-1) and TP317/NR-31 (M-1) DC voltage difference = $0 \pm 0.1\text{Vdc}$	CH-1 : ⌚RV315/NR-31 (N-1) CH-2 : ⌚RV316/NR-31 (M-1)

10-9. DOLBY DETECT LEVEL ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
• STOP mode	TP318/NR-31 (K-1) E211/NR-31 (L-1) DC voltage = $3.5 \pm 0.05\text{Vdc}$	⌚RV317/NR-31 (K-1)

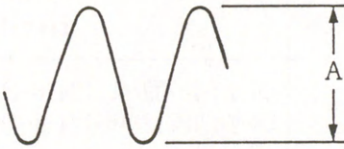
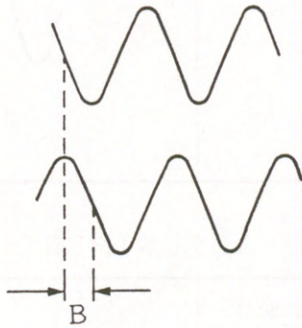
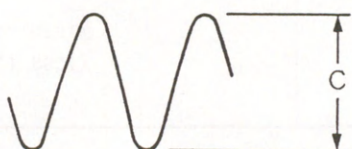
10-10. PB PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the AUDIO NR ON segment of the alignment tape RR5-1SD.	TP312/NR-31 (K-1) TP313/NR-31 (L-1)  $A = 0.5^{+0.1}_{-0} V_{p-p}$	⌚RV313/NR-31 (K-1) ⌚RV314/NR-31 (M-1)
• Connect CH-1 of oscilloscope to TP311/NR-31 (L-1), and CH-2 of oscilloscope to TP312/NR-31 (K-1) to be displayed Lissajous' wave. Adjust the X and Y axes' amplitude. • After the adjustment is completed, connect the oscilloscope to TP311/NR-31 (L-1) and TP313/NR-31 (L-1), and then perform the same check.	 Phase Difference : direction of 0° or 180° B = less than 1.5cm (15°)	⌚RV312/NR-31 (L-1)

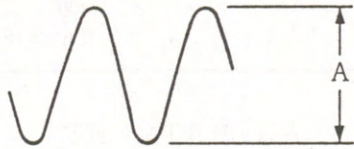
10-11. FULL ERASE OSC. LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	TP601/AU-124 (A-5) GND : E601/AU-124 (A-4) Level : $220 \pm 30 \text{ mVrms}$ (Check) Frequency : $71 \pm 2 \text{ kHz}$	RV604/AU-124 (B-1)

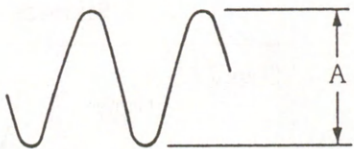
10-12. AUDIO ERASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	Step 1. CH-1 : TP701/AU-124 (F-1) CH-2 : TP723/AU-124 (M-1)  Maximize the A level.	CH-1 : RV701/AU-124 (E-1) CH-2 : RV702/AU-124 (L-1) • Adjust from the component side.
	Step 2. CH-1 : TP701 CH-2 : TP723  $B = 0 \pm 15^\circ$ ($0 \pm 0.6 \mu\text{s}$)	
	Step 3. CH-1 : TP702/AU-124 (F-2) CH-2 : TP705/AU-124 (N-2)  After performing the Step 2, there is no warp on C. $C = 12 \pm 1.0 \text{ Vp-p}$	

10-13. BIAS TUNING ADJUSTMENT (1)

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	CH-1 : TP707/AU-124 (D-1) CH-2 : TP710/AU-124 (K-1)  Maximize the A level.	CH-1 : ●LV703/AU-124 (D-1) CH-2 : ●LV705/AU-124 (K-1) • Adjust from the component side.

10-14. BIAS TUNING ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	CH-1 : TP709/AU-124 (B-1) CH-2 : TP712/AU-124 (H-1)  Maximize the A level.	CH-1 : ●LV704/AU-124 (B-2) CH-2 : ●LV706/AU-124 (J-2) • Adjust from the component side.

10-15. BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1 : TP151/AU-124 (K-7) GND : E151/AU-124 (H-6) CH-2 : TP351/AU-124 (G-6) GND : E151/AU-124 (H-7) Minimize the level. (less than -10dBu)	CH-1 : ●LV151/AU-124 (J-6) CH-2 : ●LV351/AU-124 (J-6) • Adjust from the component side.

10-16. REC BIAS CURRENT ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1 : TP101/AU-124(J-7) GND : TP102/AU-124(J-7) CH-2 : TP301/AU-124(H-7) GND : TP302/AU-124(H-6) $12.0 \pm 0.5 \text{mVrms}$	CH-1 : ⒶRV403/AU-124(D-1) CH-2 : ⒶRV405/AU-124(K-1)

10-17. REC BIAS CURRENT ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KCA-60 tape. • REC mode	CH-1 : TP101/AU-124(J-7) GND : TP102/AU-124(J-7) CH-2 : TP301/AU-124(H-7) GND : TP302/AU-124(H-6) $9.0 \pm 0.5 \text{mVrms}$	CH-1 : ⒶRV404/AU-124(D-1) CH-2 : ⒶRV406/AU-124(L-1)

10-18. INSERT BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60(no signal)tape. • CH-1, CH-2 INSERT mode	CH-1 : TP103/AU-124(H-4), CH-1 INSERT mode GND : E151/AU-124(H-7) CH-2 : TP303/AU-124(G-5), CH-2 INSERT mode GND : E151/AU-124(H-7) Minimize the level. (less than -10dBu)	CH-1 : ⒶLV101/AU-124(J-6) • Adjust from the component side, CH-2 : ⒶLV301/AU-124(J-6) • Adjust from the component side,

10-19. REC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, -16dBu - Insert the KSP-60 tape. - REC mode - AUDIO LIMITER SW : OFF - Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a short- ing clip. - After the adjustment is completed, remove the shorting clip.	CH-1: TP152/AU-124(K-6) GND : E151/AU-124(H-7) CH-2: TP352/AU-124(H-6) GND : E151/AU-124(H-7) -16±1dBu	CH-1 : ⌚RV152/AU-124(K-4) CH-2 : ⌚RV352/AU-124(G-3)

10-20. CH-1 REC EQ ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
Step 1. - AUDIO LINE IN CH-1 : 1kHz, -16dBu - Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a short- ing clip. - Turn RV151/AU-124(K-4) fully clockwise. - Insert the KSP-60 tape. - REC mode	TP152/AU-124(K-6) GND : E151/AU-124(H-7) Read the value of AC voltmeter. This value is AdBu.	
Step 2. - AUDIO LINE IN CH-1 : 21kHz, -16dBu - Continue the state of Step 1. - After the adjustment is completed, remove the shorting clip.	TP152/AU-124(K-6) GND : E151/AU-124(H-7) ①Maximize the level. ②A(Step 1) + 21±0.5dB	① ⌚LV152/AU-124(K-4) • Adjust from the component side. ② ⌚RV151/AU-124(K-4)

10-21. CH-2 REC EQ ADJUSTMENT (SP TAPE)

Conditions for adjustment	Specifications	Adjustments
Step 1. - AUDIO LINE IN CH-2: 1kHz, -16dBu - Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. - Turn RV351/AU-124(G-3) fully clockwise. - Insert the KSP-60 tape. - REC mode	TP352/AU-124(H-6) GND: E151/AU-124(G-7) Read the value of AC voltmeter. This value is AdBu.	
Step 2. - AUDIO LINE IN CH-2: 21kHz, -16dBu - Continue the state of Step 1. - After the adjustment is completed, remove the shorting clip.	TP352/AU-124(H-6) GND: E151/AU-124(G-7) ① Maximize the level. ② A (Step 1) + 21 ± 0.5 dBu	① ● LV352/AU-124(G-3) • Adjust from the component side. ② ● RV351/AU-124(G-3)

10-22. CH-1 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments																
Step 1. • AUDIO LINE IN : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu • DOLBY SW : OFF • Insert the KSP-60 tape. • Record each frequency for 15 seconds. • Rewind and play back the recorded portion.	AUDIO LINE OUT CH-1(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ±3dB</td></tr><tr><td>90 Hz</td><td>0 ±2dB</td></tr><tr><td>1 kHz</td><td>0 dB (REF)</td></tr><tr><td>3 kHz</td><td>0 ±0.9dB</td></tr><tr><td>7 kHz</td><td>0 ±0.9dB</td></tr><tr><td>10 kHz</td><td>0 ^{+0.8}_{-1.0} dB</td></tr><tr><td>15 kHz</td><td>0 ^{+0.6}_{-1.2} dB</td></tr></table>	Frequency	Level	40 Hz	0 ±3dB	90 Hz	0 ±2dB	1 kHz	0 dB (REF)	3 kHz	0 ±0.9dB	7 kHz	0 ±0.9dB	10 kHz	0 ^{+0.8} _{-1.0} dB	15 kHz	0 ^{+0.6} _{-1.2} dB	
Frequency	Level																	
40 Hz	0 ±3dB																	
90 Hz	0 ±2dB																	
1 kHz	0 dB (REF)																	
3 kHz	0 ±0.9dB																	
7 kHz	0 ±0.9dB																	
10 kHz	0 ^{+0.8} _{-1.0} dB																	
15 kHz	0 ^{+0.6} _{-1.2} dB																	
Step 2.	When 7~15kHz doesn't meet the specification: 1. AUDIO LINE IN : no signal 2. Measure the value of TP101/AU-124(J-7) (GND : TP102/AU-124(J-7)) by AC voltmeter. 3. Insert the KSP-60 tape. 4. REC mode 5. Readjust the bias current at RV403/AU-124 (D-1) with in the limits of 8~15mVrms. NOTE: When the high frequency is lower than the specification, lower the bias voltage. 6. Perform Step 1 and then confirm that the frequency response meets the specification. When 15kHz doesn't meet the specification: 1. Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. 2. Measure the value of TP152/AU-124(K-6) (GND : E151/AU-124(H-7)) by AC voltmeter. 3. AUDIO LINE IN CH-1 : 15kHz, -16dBm 4. Insert the KSP-60 tape. 5. REC mode. Read the value of the AC voltmeter(A dBu). 6. Add to A for the level which doesn't meet the specification of 15kHz. 7. Readjust the value of 5. at RV151/AU-124 (K-5). 8. Perform Step 1 and confirm that the frequency response meets the specification.																	

10-23. CH-2 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments																
Step 1. • AUDIO LINE IN : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu • DOLBY SW : OFF • Insert the KSP-60 tape. • Record each frequency for 15 seconds. • Rewind and play back the recorded portion.	AUDIO LINE OUT CH-2(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ±3dB</td></tr><tr><td>90 Hz</td><td>0 ±2dB</td></tr><tr><td>1 kHz</td><td>0 dB (REF)</td></tr><tr><td>3 kHz</td><td>0 ±0.9dB</td></tr><tr><td>7 kHz</td><td>0 ±0.9dB</td></tr><tr><td>10 kHz</td><td>0 ^{+0.8}_{-1.0} dB</td></tr><tr><td>15 kHz</td><td>0 ^{+0.6}_{-1.2} dB</td></tr></table>	Frequency	Level	40 Hz	0 ±3dB	90 Hz	0 ±2dB	1 kHz	0 dB (REF)	3 kHz	0 ±0.9dB	7 kHz	0 ±0.9dB	10 kHz	0 ^{+0.8} _{-1.0} dB	15 kHz	0 ^{+0.6} _{-1.2} dB	
Frequency	Level																	
40 Hz	0 ±3dB																	
90 Hz	0 ±2dB																	
1 kHz	0 dB (REF)																	
3 kHz	0 ±0.9dB																	
7 kHz	0 ±0.9dB																	
10 kHz	0 ^{+0.8} _{-1.0} dB																	
15 kHz	0 ^{+0.6} _{-1.2} dB																	
Step 2.	When 7~15kHz doesn't meet the specification: 1. AUDIO LINE IN : no signal 2. Measure the value of TP301/AU-124(H-7) (GND : TP302/AU-124(H-6)) by AC voltmeter. 3. Insert the KSP-60 tape. 4. REC mode 5. Readjust the bias current at RV405/AU-124 (K-1) with in the limits of 8~15mVms. NOTE: When the high frequency is lower than the specification, lower the bias voltage. 6. Perform Step 1 and then confirm that the frequency response meets the specification. When 15kHz doesn't meet the specification: 1. Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. 2. Medasure the value of TP352/AU-124(H-6) (GND : E151/AU-124(H-7)) by AC voltmeter. 3. AUDIO LINE IN CH-2 : 15kHz, -16dBm 4. Insert the KSP-60 tape. 5. REC mode. Read the value of the AC volt-meter (A dBu). 6. Add to A for the level which doesn't meet the specification of 15kHz. 7. Readjust the value of the Step 5 at RV352/AU-124(G-2). 8. Perform Step 1 and confirm that the frequency response meets the specification.																	

10-24. CONVENTIONAL TAPE OVERALL FREQUENCY RESPONSE CHECK

machine conditions for adjustment	specifications	adjustments																
• AUDIO LINE IN CH-1, CH-2 : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu • Insert the KCA-60 tape. • Record each frequency for 20 seconds. • Rewind and play back the recorded portion.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>40 Hz</td><td>0 ⁺³₋₄dB</td></tr><tr><td>90 Hz</td><td>0 ±2dB</td></tr><tr><td>1 kHz</td><td>0 dB (REF)</td></tr><tr><td>3 kHz</td><td>0 ±1.5dB</td></tr><tr><td>7 kHz</td><td>0 ±1.5dB</td></tr><tr><td>10 kHz</td><td>0 ^{+1.4}_{-1.6}dB</td></tr><tr><td>15 kHz</td><td>0 ^{+1.7}_{-2.3}dB</td></tr></table>	Frequency	Level	40 Hz	0 ⁺³ ₋₄ dB	90 Hz	0 ±2dB	1 kHz	0 dB (REF)	3 kHz	0 ±1.5dB	7 kHz	0 ±1.5dB	10 kHz	0 ^{+1.4} _{-1.6} dB	15 kHz	0 ^{+1.7} _{-2.3} dB	
Frequency	Level																	
40 Hz	0 ⁺³ ₋₄ dB																	
90 Hz	0 ±2dB																	
1 kHz	0 dB (REF)																	
3 kHz	0 ±1.5dB																	
7 kHz	0 ±1.5dB																	
10 kHz	0 ^{+1.4} _{-1.6} dB																	
15 kHz	0 ^{+1.7} _{-2.3} dB																	

NOTE : When not to meet the specification, perform Sec. 10-17 REC BIAS CURRENT ADJUSTMENT(CONV TAPE).
When the high frequency is lower than the specification, lower the bias voltage.

10-25. REC LEVEL ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - Insert the KSP-60 tape. - REC mode$\leftrightarrow$PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31(A-1) CH-2 : TP113/NR-31(E-1) -10 $\pm$ 0.3dBu After the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) +4.0 $\pm$ 0.3dBm	CH-1 : ●RV152/AU-124(K-4) CH-2 : ●RV352/AU-124(G-3)

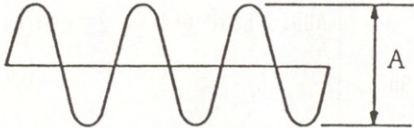
10-26. REC LEVEL ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu - Insert the KCA-60 tape. - REC mode$\leftrightarrow$PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31(A-1) CH-2 : TP113/NR-31(E-1) $-10 \pm 0.5 \text{dBu}$ After the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) $+4.0 \pm 0.5 \text{dBm}$	CH-1 : ●RV153/AU-124(K-4) CH-2 : ●RV353/AU-124(F-3)

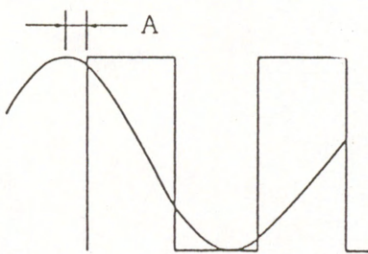
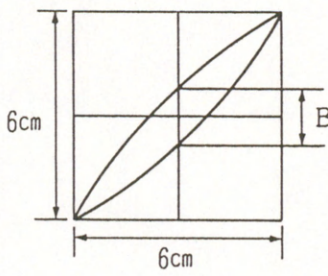
10-27. CROSSTALK CANCELER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. CH-1 Insert Adjustment - AUDIO LINE IN CH-1 : 5kHz, +4dBu - Insert the KSP-60 tape(no signal) with CTL. - CH-1 Insert mode.	AUDIO LINE OUT CH-2(terminated by 600Ω) Minimize the level. (less than -18dBm)	●RV301/AU-124(K-5)
Step 2. CH-2 Insert Adjustment - AUDIO LINE IN CH-2 : 5kHz, +4dBu - Insert the KSP-60 tape(no signal) with CTL. - CH-2 Insert mode.	AUDIO LINE OUT CH-1(terminated by 600Ω) Minimize the level. (less than -18dBm)	●RV101/AU-124(L-7)

10-28. OA PILOT TONE LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2: no signal - DOLBY SW: ON - Insert the KSP-60 tape. - REC mode	CH-1 : TP152/AU-124(K-6) GND : E151/AU-124(H-7) CH-2 : TP352/AU-124(H-6) GND : E151/AU-124(H-7) Adjust to $-22 \pm 1\text{dBu}$ temporarily.	CH-1 : RV211/NR-31(F-1) CH-2 : RV212/NR-31(F-1)
- Record for 10 seconds. - Rewind and play back the recorded portion.	CH-1 : TP312/NR-31(K-1) GND : E211/NR-31(L-1) CH-2 : TP313/NR-31(L-1) GND : E211/NR-31(L-1)  $A = 0.6 \pm 0.05\text{V}$	CH-1 : RV211/NR-31(F-1) CH-2 : RV212/NR-31(F-1)

10-29. OA PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- AUDIO LINE IN CH-1, CH-2: no signal - DOLBY SW: ON - Insert the KSP-60 tape. - REC mode	CH-1 : TP311/NR-31 (L-1) GND : E211/NR-31 (L-1) CH-2 : TP211/NR-31 (H-1) GND : E211/NR-31 (L-1)  (Adjust) $A = 0 \pm 2.7 \text{msec}$ temporarily.	●RV311/NR-31 (L-1)
- Record for 10 seconds. - Rewind and play back the recorded portion - PB→Check REC→Adjustment	CH-1 : TP311/NR-31 (L-1) CH-2 : TP312/NR-31 (K-1)  Perform the fine tuning so as to be $B \leq 1.5 \text{cm}$ (15°). Adjust performing PB and REC repeatedly.	●RV311/NR-31 (L-1) TRIG : TP311/NR-31 (L-1)

SECTION 11

VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- NTSC signal generator (TEKTRONIX1410 or equivalent).
- Vectorscope.
- DC voltmeter.
- Frequency counter.
- Video sweep signal generator.
- Spectrum analyzer.
- Cassette Tape : KCA, KCS and KSP.
- Alignment Tape : RR5-1SD (part No. 8-960-037-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	_____	OFF	_____
3	Gated sweep (B/W)	1kHz, 0dB		_____
3	Gated sweep (color)	10kHz, -10dB		_____
3	Pulse & Bar (color)	1kHz, -20dB		_____
		40Hz, -20dB		_____
		7kHz, -20dB		_____
		10kHz, -20dB		_____
		15kHz, -20dB		_____
2	Pulse & Bar (B/W)	1kHz, -20dB	ON	_____
		15kHz, -20dB		_____
2	Monoscope (color)	_____	OFF	_____
2	Pseudo color bars	_____		TIME CODE

RR5-3SA (Part No. 8-960-015-04) -conventional tape-

REAL TIME Counter (min)	TAPE COUNTER	VIDEO TRACK	AUDIO TRACK
00:00-04:00	000-100	Monoscope	3kHz, 0dB
04:00-09:00	100-208	Color-bar	————
09:00-14:00	208-300	R-F sweep	————
14:00-16:00	300-335	Mod. 20T pulse	1kHz, 0dB
16:00-18:00	335-367	Monoscope (color)	10kHz, -10dB
18:00-20:00	367-398	Pseudo C. B. for DOC adj.	————

RR5-4SB (part No. 8-960-015-16) -conventional tape-

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	3kHz, 0dB	1kHz
5	R-F sweep	————	————
5	Monoscope	————	————
2.5	Modulated 20T pulse	1kHz, 0dB	————
2.5	R-F 8MHz	10kHz, -10dB	————

[Switch Setting]

Front Panel

- VIDEO LEVEL sw.....AUTO
- INPUT SELECT sw.....LINE

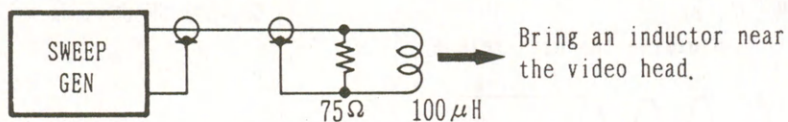
Connector Panel

- VIDEO IN 75 Ω swON

Do not move these switches unless otherwise specified.

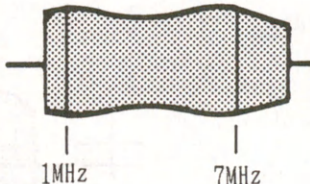
11-1. PB RF FREQUENCY RESPONSE ADJUSTMENT (1)

To make this adjustment, the head drum rotation is stopped without a cassette tape, and the sweep signal is L-coupled to the video head using an inductor (approximately $100\mu\text{H}$).

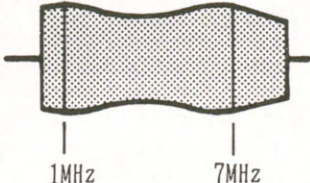


Sweep signal band width: 1 to 10MHz

Step 1. CH-A RF frequency response adjustment

machine conditions for adjustment	specifications	adjustments				
• Short between TP8/DM-69 (D-7) and GND with a shorting clip. • Couple a sweep signal to the video head (CH-A). • Adjust the sweep signal generator output so that the signal level in about 250mVp-p. • After the adjustment is completed, remove the shorting clip.	TP7/RP-40 (D-1)  <table><tr><td>1MHz</td><td>7MHz</td></tr><tr><td>100% (reference)</td><td>100±5%</td></tr></table>	1MHz	7MHz	100% (reference)	100±5%	RV4/RP-40 (D-2) TRIG : Trigger output/ sweep generator
1MHz	7MHz					
100% (reference)	100±5%					

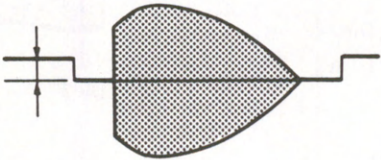
Step 2. CH-B RF frequency response adjustment

machine conditions for adjustment	specifications	adjustments				
• Short between TP8/DM-69 (D-7) and GND with a shorting clip. • Couple a sweep signal to the video head (CH-B). • Adjust the sweep signal generator output so that the signal level is about 250mVp-p. • After the adjustment is completed, remove the shorting clip.	TP10/RP-40 (D-1)  <table border="1"><tr><td>1MHz</td><td>7MHz</td></tr><tr><td>100% (reference)</td><td>100±5%</td></tr></table>	1MHz	7MHz	100% (reference)	100±5%	RV6/RP-40 (D-1) TRIG : Trigger output/ sweep generator
1MHz	7MHz					
100% (reference)	100±5%					

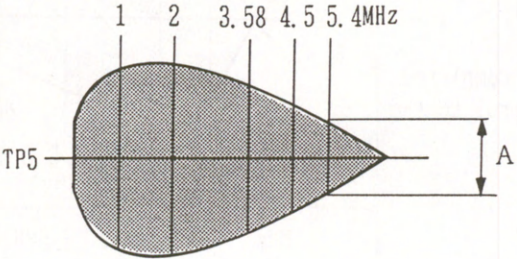
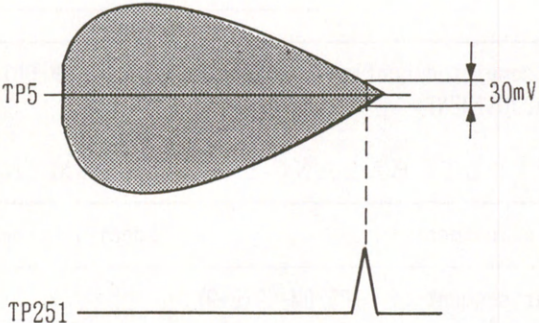
11-2. AUDIO BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the tape on which only a CTL signal is recorded (Video signal is not being recorded on the tape). • AUDIO CH-1 INSERT mode.	TP501/DM-69 (C-2) Minimize the bias leak A. 	● LV501/DM-69 (C-6)

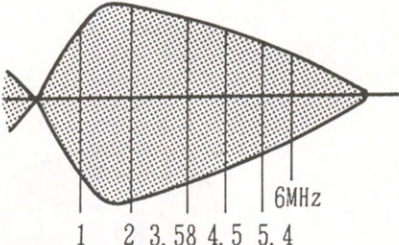
11-3. RF AMPLIFIER DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP5/SV-112 (M-7) and GND with a shorting clip. • Play back the RF sweep segment of the alignment tape RR5-4SB. • Fully turn RV1/DM-69 (B-7) counter-clockwise. • After the adjustment is completed, remove the shorting clip.	TP17/DM-69 (C-8)  Equalize the dc level in both channels.	● RV1/DM-69 (B-7) TRIG : TP4/DM-69 (D-7)

11-4. DROPOUT COMPENSATION SENSITIVITY ADJUSTMENT

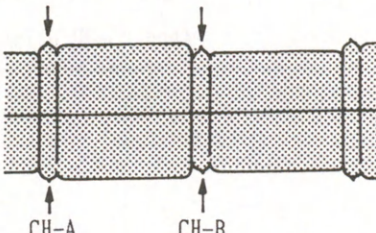
machine conditions for adjustment	specifications	adjustments
Play back the RF sweep segment of the alignment tape RR5-4SB.	CH-1 : TP5/DM-69 (E-9) CH-2 : TP251/DM-69 (E-7) Step 1.  Step 2. A = 300mV  TP251 Appear DOC pulse at 30mV level.	Step 1. RV5/DM-69 (A-8) Step 2. RV251/DM-69 (E-8)

11-5. PB RF FREQUENCY RESPONSE ADJUSTMENT (2)

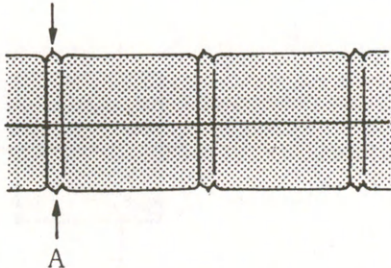
machine conditions for adjustment	specifications	adjustments										
• Play back the RF sweep segment of the alignment tape RR5-4SB. • Maximize the RF level at TP3/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP3/DM-69 (C-9)  <table><tr><td>2MHz</td><td>3.58MHz</td><td>4.5MHz</td><td>5.4MHz</td><td>6MHz</td></tr><tr><td>100% (reference)</td><td>80 ±10%</td><td>75 ±10%</td><td>60 ±5%</td><td>55 ±10%</td></tr></table>	2MHz	3.58MHz	4.5MHz	5.4MHz	6MHz	100% (reference)	80 ±10%	75 ±10%	60 ±5%	55 ±10%	CH-A : ⓧRV3/DM-69 (C-8) CH-B : ⓧRV2/DM-69 (C-7) TRIG : TP4/DM-69 (D-7)
2MHz	3.58MHz	4.5MHz	5.4MHz	6MHz								
100% (reference)	80 ±10%	75 ±10%	60 ±5%	55 ±10%								

After this adjustment is completed, confirm the section 11-6. Y RF OUTPUT BALANCE ADJUSTMENT and the section 11-7. Y RF OUTPUT LEVEL ADJUSTMENT.

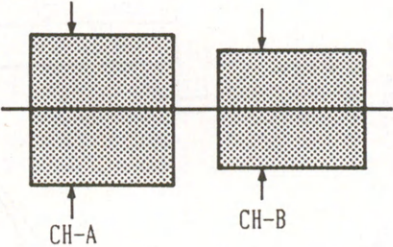
11-6. Y RF OUTPUT BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP5/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-69 (E-9)  CH-A CH-B Sync tip level in CH-A = Sync tip level in CH-B ± 5%	ⓧRV6/DM-69 (C-8) TRIG : TP4/DM-69 (D-7)

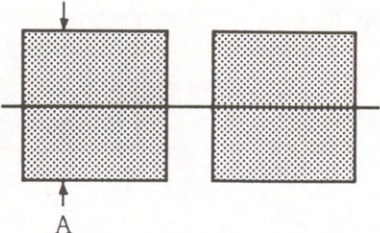
11-7. Y RF OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP5/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-69 (E-9)  A=0.35±0.04V	RV5/DM-69 (A-8) TRIG : TP4/DM-69 (D-7)

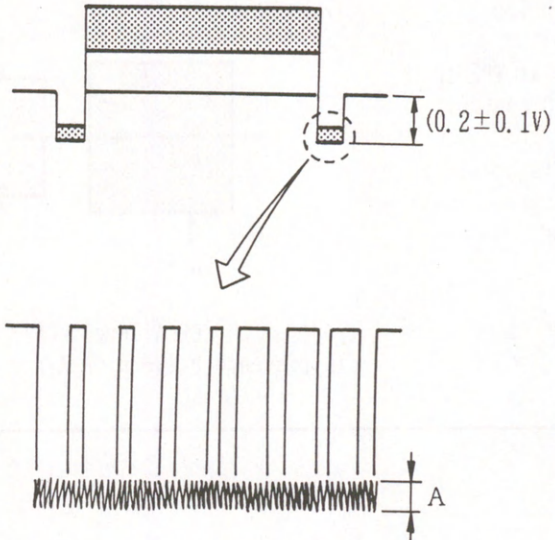
11-8. PB CHROMA RF BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP501/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP501/DM-69 (C-2)  CH-A level=CH-B level (Difference between CH-A and B=within 0.015V)	RV4/DM-69 (C-8) TRIG : TP4/DM-69 (D-7)

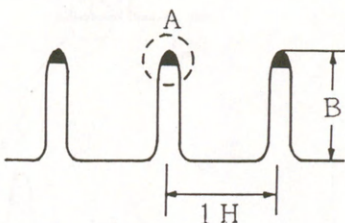
11-9. PB CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP501/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP501/DM-69 (C-2)  $A = 0.2 \pm 0.01V$	RV501/DM-69 (C-5) TRIG : TP4/DM-69 (D-7)

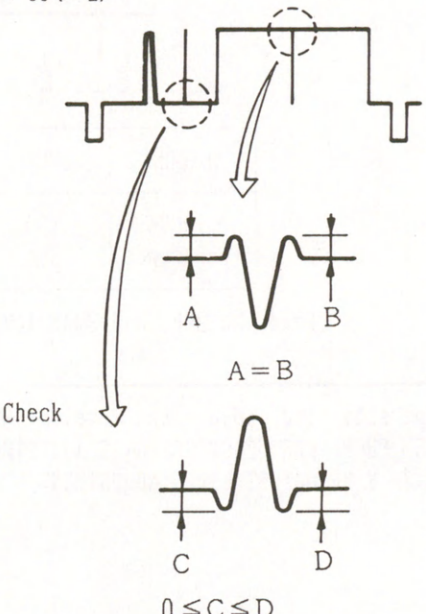
11-10. CARRIER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-4SB.	TP14/DM-69 (J-7)  Minimize the A level ($A \leq 80mV$)	RV8/DM-69 (E-9) TRIG : TP4/DM-69 (D-7)

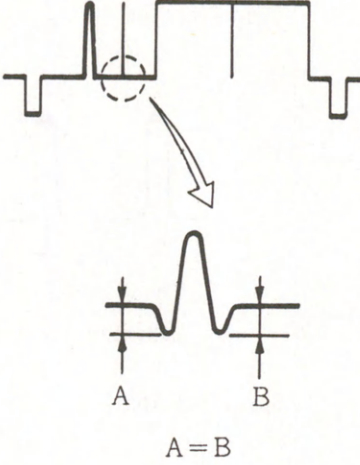
11-11. SP MODE DETECTION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-4SB.	TP301/DM-69(D-4) Specification 1  Maximize the A portion Specification 2 $B = 2.3 \pm 0.1V$	⦿LV301/DM-69(D-4) ⦿RV301/DM-69(D-5)
Play back the color-bar segment of the alignment tape RR5-1SD.	Confirm that the SP lamp on the Front panel lights.	

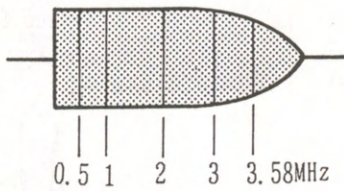
11-12. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
Play back the pulse and bar (B/W) segment of the alignment tape RR5-1SD.	TP15/DM-69(J-2)  Check $A = B$ $0 \leq C \leq D$	⦿RV9/DM-69(J-9)

11-13. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (CONVENTIONAL MODE)

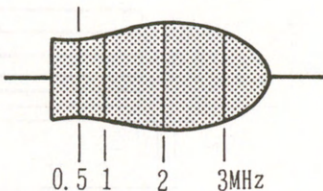
machine conditions for adjustment	specifications	adjustments
• Play back the MOD 20T signal on alignment tape RR5-4SB.	TP15/DM-69(J-2)  A = B	RV10/DM-69(K-9)

11-14. DUB Y PB FREQUENCY RESPONSE ADJUSTMENT (SP MODE)

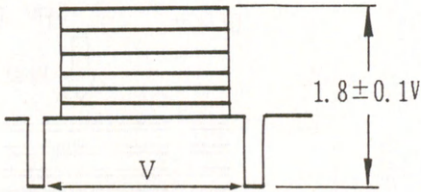
machine conditions for adjustment	specifications	adjustments								
• Play back the gated sweep (B/W) segment of the alignment tape RR5-1SD.	TP15/DM-69 (J-2)  <table><tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr><tr><td>100% (reference)</td><td>100 ±5%</td><td>100 ±10%</td><td>92^{+8%} -2%</td></tr></table>	0.5MHz	1MHz	2MHz	3MHz	100% (reference)	100 ±5%	100 ±10%	92 ^{+8%} -2%	CV1/DM-69 (J-9) TRIG : TP4/DM-69 (D-7)
0.5MHz	1MHz	2MHz	3MHz							
100% (reference)	100 ±5%	100 ±10%	92 ^{+8%} -2%							

NOTE : If the specification is not satisfied, adjust the level at 3MHz using RV2/DM-69(C-7) and RV3/DM-69(C-8), then, perform the sec.11-5. PB RF FREQUENCY RESPONSE ADJUSTMENT (2), the sec. 11-6. Y RF OUTPUT BALANCE ADJUSTMENT and the sec.11-7. Y RF OUTPUT LEVEL ADJUSTMENT.

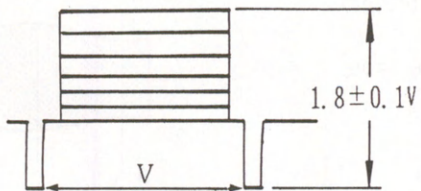
11-15. DUB Y PB FREQUENCY RESPONSE ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments				
• VIDEO IN connector : Gated sweep(color) • Insert a KCA or KCS cassette tape. • Play back the self recorded portion.	TP15/DM-69(J-2)  <table><tr><td>0.5MHz</td><td>2MHz</td></tr><tr><td>100% (reference)</td><td>110 ±6%</td></tr></table>	0.5MHz	2MHz	100% (reference)	110 ±6%	●CV2/DM-69(K-8) TRIG : TP4/DM-69(D-7)
0.5MHz	2MHz					
100% (reference)	110 ±6%					

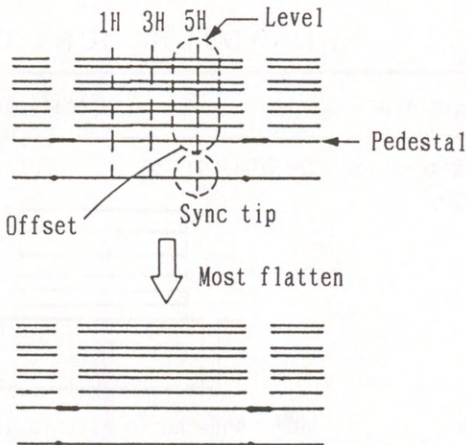
11-16. Y OUTPUT LEVEL ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP15/DM-69(J-2)  NOTE : When noise appears at TP15/DM-69(J-2), measure the level in the center of noise.	●RV17/DM-69(F-8) TRIG : TP4/DM-69(D-7)

11-17. Y OUTPUT LEVEL ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-4SB.	TP15/DM-69 (J-2)  NOTE : When noise appears at TP15/DM-69 (J-2), measure the level in the center of noise.	RV11/DM-69 (K-9) TRIG : TP4/DM-69 (D-7)

11-18. DOC OFFSET/LEVEL ADJUSTMENT

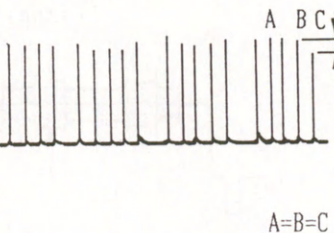
machine conditions for adjustment	specifications	adjustments
Play back the pseudo color-bar segment of the alignment tape RR5-3SA	TP15/DM-69 (J-2) 	Offset adj. RV13/DM-69 (H-5) Level adj. RV201/DM-69 (K-4) TRIG : TP4/DM-69 (D-7)

After this adjustment is completed, confirm the sec. 11-12. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (SP MODE) and the sec. 11-13. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (CONVENTIONAL MODE).

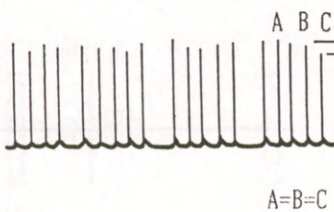
11-19. SP/CONV DC SHIFT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD. • DC voltmeter	TP13/DM-69 (H-8) Voltage=A Vdc	
Step 2. • Play back the color-bar segment of the alignment tape RR5-4SB.	Voltage B=A±0.01Vdc	RV16/DM-69 (K-8)

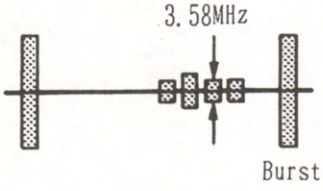
11-20. 1H-DELAY CCD LINEARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : 5 STEP signal • EE mode • WAVE FORM MONITOR : DIFF'D STEP mode Use a probe at an attenuation factor of 1 to 1.	TP402/MD-59 (B-4) 	RV401/MD-59 (C-7)

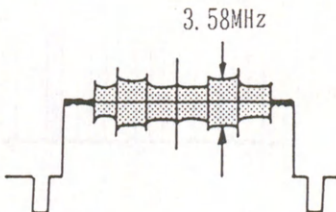
11-21. 2H-DELAY CCD LINEARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : 5 STEP signal • EE mode • WAVE FORM MONITOR : DIFF'D STEP mode Use a probe at an attenuation factor of 1 to 1.	TP403/MD-59 (A-6) 	RV404/MD-59 (B-6)

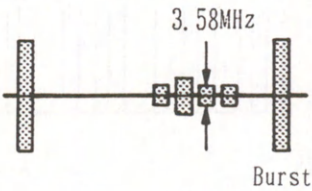
11-22. 1H-DELAY CCD LEVEL/PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Solder SL1/MD-59(A-4). - Open SL2/MD-59(A-4). - VIDEO IN connector : Multiburst - EE mode - After the adjustment is completed, return SL1 and SL2 to the former positions.	TP405/MD-59(B-3)  Minimize the level at 3.58MHz.	- RV402/MD-59(B-5) - RV403/MD-59(B-4) - Adjust RV402 and RV403 alternately. TRIG : TP5/MD-59(F-5)

11-23. CCD CLOCK PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- VIDEO IN connector : Multiburst - EE mode - Turn RV405/MD-59 from the full left position and adjust so that the level is maximized.	TP403/MD-59(A-6)  Maximize the 3.58MHz level.	RV405/MD-59(C-6)

11-24. 2H-DELAY CCD LEVEL/PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Open SL1/MD-59(A-4). - Solder SL2/MD-59(A-4). - VIDEO IN connector : Multiburst - EE mode - After the adjustment is completed, return SL1 and SL2 to the former positions.	TP405/MD-59(C-3)  Minimize the level at 3.58MHz.	- RV406/MD-59(A-5) - RV407/MD-59(A-5) TRIG : TP5/MD-59(F-5)

11-25. REC CHROMA BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Fully turn RV408/MD-59 (A-2) clockwise temporarily.	TP405/MD-59 (C-3) $A = B$	●RV408/MD-59 (A-2)

11-26. CHROMA CANCEL ADJUSTMENT

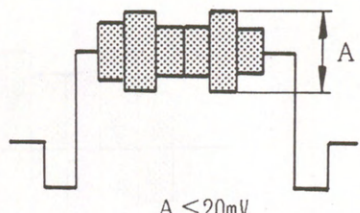
Step 1.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	TP410/MD-59 (E-2) $A = 1.8 \pm 0.05V$	●RV412/MD-59 (D-5)

Step 2.

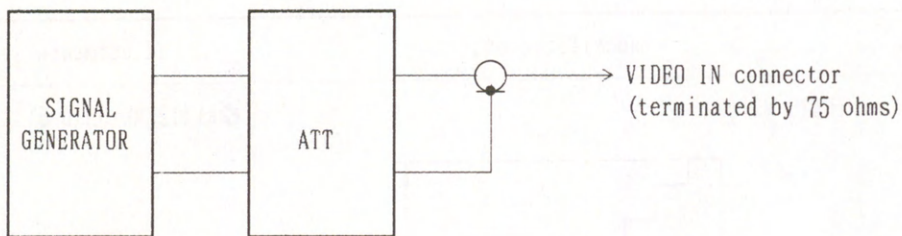
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar (Y OFF) • EE mode	TP409/MD-59 (E-4) Minimize the A level.	●RV411/MD-59 (E-5) ●RV413/MD-59 (E-5)

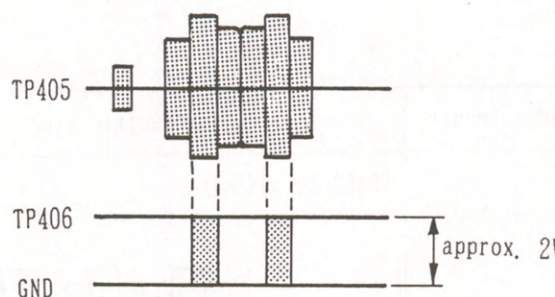
Step 3.

machine conditions for adjustment	specifications	adjustments
• Short between TP407/MD-59 (E-4) and TP408/MD-59 (E-4) with a shorting clip. • VIDEO IN connector : Color-bar (Y OFF) • EE mode	TP410/MD-59 (E-2)  $A \leq 20\text{mV}$ Even though the shorting clip is removed, this level may be satisfied.	●RV410/MD-59 (C-4) ●RV414/MD-59 (E-3)

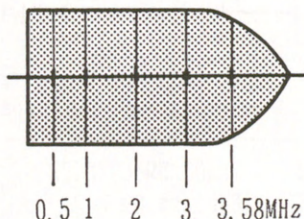
If the specification of Step 3. is not satisfied, readjust Step 2.

Step 4.



machine conditions for adjustment	specifications	adjustments
• Signal generator output : Color-bar • Set the attenuator to 20dB. • EE mode	CH-1 : TP405/MD-59 (C-3) CH-2 : TP406/MD-59 (D-3)  TP405 TP406 GND approx. 2V With -20dB input : TP406 turn to "H" (approx. 2V) With -16dB input : The pulse is out at TP406.	●RV409/MD-59 (C-3)

11-27. REC Y FREQUENCY RESPONSE ADJUSTMENT

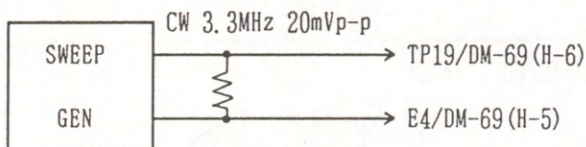
machine conditions for adjustment	specifications	adjustments				
• VIDEO IN connector : Video sweep • EE mode	TP410/MD-59 (E-2)  <table><tr><td>0.5MHz</td><td>3MHz</td></tr><tr><td>100% (reference)</td><td>100%</td></tr></table>	0.5MHz	3MHz	100% (reference)	100%	● CV401/MD-59 (E-2) TRIG : Trigger output/ sweep generator
0.5MHz	3MHz					
100% (reference)	100%					

11-28. Y PHASE EQUALIZING ADJUSTMENT

[illegible]

11-29. Y NOISE CANCELLER ADJUSTMENT

[Connection]



machine conditions for adjustment	specifications	adjustments
- Desolder the bridge on SL2/DM-69 (H-6). - Short between TP20/DM-69 (G-5) and E3/DM-69 (H-4) with a shorting clip. - INPUT SELECT SW/FRONT PANEL : DUB - Record this level. - Remove the shorting clip of TP20/DM-69 and adjust. - After the adjustment is completed, resolder the solder bridge.	TP401/DM-69 (F-2) E401/DM-69 (E-2) Spectrum analyzer 3.3MHz 3.3MHz Lower by $20 \pm 1\text{dB}$ than the recorded level.	VR1 (IC12) /DM-69 (F-6)

11-30. PB CHROMA RF LEVEL READJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. - Play back the color-bar segment of the alignment tape RR5-1SD. - TRACKING : Maximize the RF level of TP501/DM-69.	TP501/DM-69 (C-2) $A = 0.2 \pm 0.01\text{V}$	RV501/DM-69 (C-5) TRIG : TP15/DM-69 (J-2)
Step 2. - Play back the color-bar segment of the alignment tape RR5-4SB. - TRACKING : Maximize the RF level of TP501/DM-69.	$A = 0.2 \pm 0.05\text{V}$	
Step 3. - Return the TRACKING control to the center click position. - VIDEO IN connector : color-bar - EE mode	$A = 0.2 \pm 0.1\text{V}$	

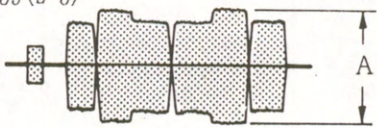
11-31. APC DC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• INPUT SELECT sw : DUB • EE mode • DC Voltmeter	TP205/MD-59 (M-3) $8.0 \pm 0.1 \text{Vdc}$	⚙️RV203/MD-59 (L-4)

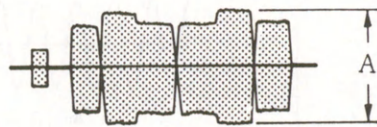
11-32. 3.58MHz OSC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Frequency counter	TP701/MD-59 (L-2) $3579.545 \pm 0.005 \text{kHz}$	⚙️CV701/MD-59 (L-1)

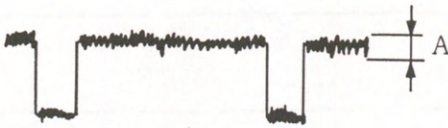
11-33. REC ACC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP212/MD-59 (L-5)  $A = 0.8 \pm 0.02 \text{V}$	⚙️RV202/MD-59 (L-4)

11-34. REC CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP201/MD-59 (M-7)  $A = 0.9 \pm 0.02 \text{V}$	⚙️RV201/MD-59 (M-3)

11-35. REC APC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP205/MD-59 (M-3)  Minimize the A level.	⌚T201/MD-59 (L-2)

11-36. VCO DC LEVEL ADJUSTMENT

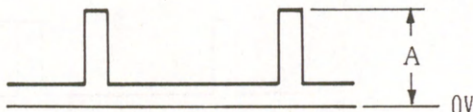
machine conditions for adjustment	specifications	adjustments
• S501/DM-70 (G-3) : OFF • Play back the color-bar segment of the alignment tape RR5-1SD. • DC Voltmeter • After the adjustment is completed, turn S501/DM-70 on.	TP514/DM-70 (G-4) $8.1 \pm 0.1 \text{Vdc}$	⌚RV505/DM-70 (E-2)

11-37. 4. 27MHz LEVEL ADJUSTMENT

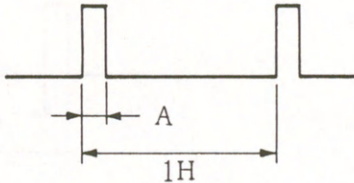
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP513/DM-70 (E-4)  $A = 0.65 \pm 0.03 \text{V}$	⌚RV517/DM-70 (G-4)

11-38. PB ACC BURST GATE ADJUSTMENT

Step1. Burst flag level adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP509/DM-70 (E-2)  $A = 4.2 \pm 0.1V$	RV511/DM-70 (E-1)

Step2. Burst flag width adjustment

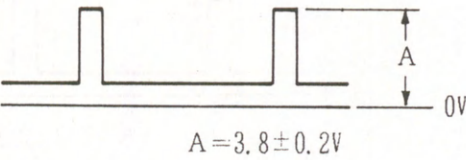
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP509/DM-70 (E-2)  $A = 2.8 \pm 0.1 \mu s$	●RV509/DM-70 (E-1)

Step3. Burst flag phase adjustment

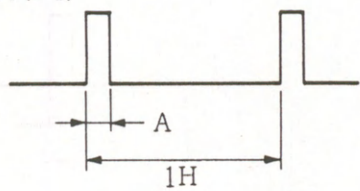
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	CH-1 : TP518/DM-70 (D-7) CH-2 : TP509/DM-70 (E-2) Align the center of both waveforms.	●RV508/DM-70 (E-1) TRIG : CH-2

11-39. PB APC BURST GATE ADJUSTMENT

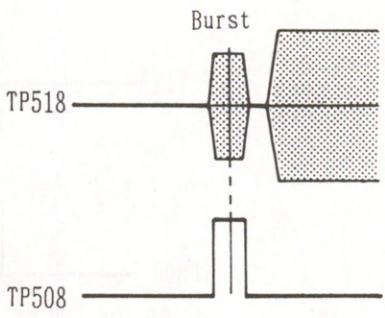
Step1. Burst flag level adjustment

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD.	TP508/DM-70 (D-2)  $A = 3.8 \pm 0.2V$	RV510/DM-70 (D-1)

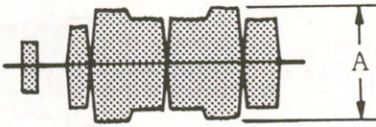
Step2. Burst flag width adjustment

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD.	TP508/DM-70 (D-2)  $A = 2.5 \pm 0.1 \mu s$	RV507/DM-70 (D-2)

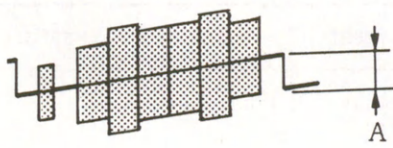
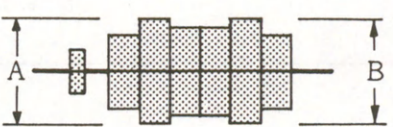
Step3. Burst flag phase adjustment

machine conditions for adjustment	specifications	adjustments
Play back the color-bar segment of the alignment tape RR5-1SD.	CH-1 : TP518/DM-70 (D-7) CH-2 : TP508/DM-70 (D-2)  Align the center of both waveforms.	RV506/DM-70 (D-2) TRIG : CH-2

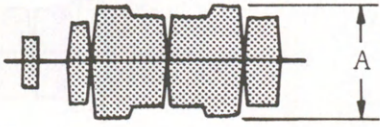
11-40. PB ACC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70 (G-8)  $A = 0.8 \pm 0.04V$	RV518/DM-70 (G-7) TRIG : TP509/DM-70 (E-2)
• VIDEO IN connector : color-bar • EE mode	TP515/DM-70 (G-8)  $A = 0.8 \pm 0.04V$	T502/DM-70 (F-5) TRIG : TP509/DM-70 (E-2)

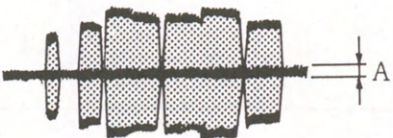
11-41. DG COMPENSATION TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70 (G-8)  The dc level is equal. (confirm that $A = 0.$)	TRIG : TP509/DM-70 (E-2)
	TP515/DM-70 (G-8)  $A = B$	RV513/DM-70 (C-6) TRIG : TP509/DM-70 (E-2)

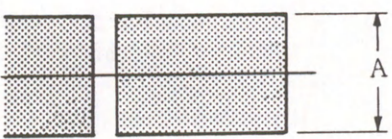
11-42. PB ACC LEVEL READJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70 (G-8)  $A = 0.8 \pm 0.05V$	RV518/DM-70 (G-7) TRIG : TP509/DM-70 (E-2)

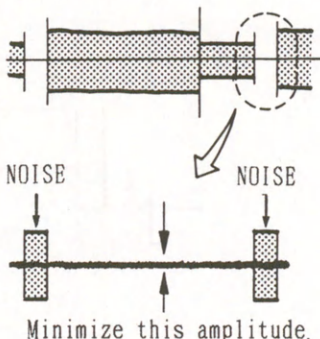
11-43. CONVERTER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Wait for more than five minutes after power is turned on.	TP518/DM-70 (D-7)  $A \leq 35mV$ Minimize the carrier leak.	RV519/DM-70 (E-7) TRIG : TP509/DM-70 (E-2)

11-44. DUB CHROMA LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP504/DM-70 (G-9)  $A = 0.96 \pm 0.05V$	RV504/DM-70 (F-9) TRIG : TP509/DM-70 (E-2)

11-45. CHROMA NOISE CANCELLER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP525/DM-70 (H-2) and E502/DM-70 (F-1) with a shorting clip. • Play back the color-bar segment of the alignment tape RR5-1SD. • After the adjustment is completed, remove the shorting clip.	TP524/DM-70 (G-2) 	⚙RV523/DM-70 (G-1) TRIG : TP509/DM-70 (E-2)

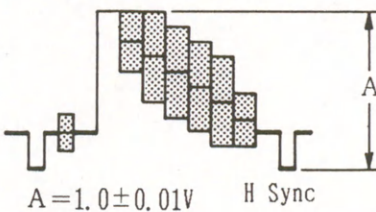
11-46. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KSP cassette tape. • EE mode	TP10/MD-59 (G-3) $5.0^{+0}_{-0.05}$ MHz	⚙RV3/MD-59 (H-4)

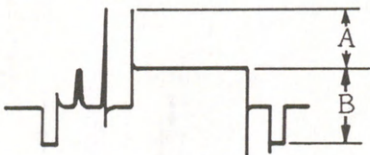
11-47. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KCA or KCS cassette tape. • EE mode	TP10/MD-59 (G-3) 3.8 ± 0.05 MHz	⚙RV4/MD-59 (G-3)

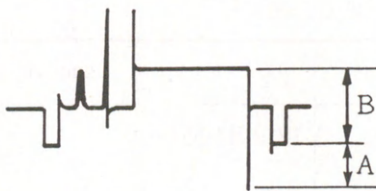
11-48. FM DEVIATION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	VIDEO OUT connector (terminated by 75 ohms) 	⚙RV1/MD-59 (H-7)

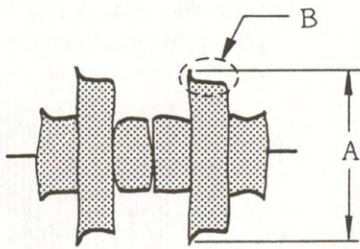
11-49. WHITE CLIP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP8/MD-59 (G-4) and TP9/MD-59 (G-4) with a shorting clip. • VIDEO IN connector : Pulse & Bar • Insert a KSP cassette tape. • EE mode	TP13/MD-59 (H-5) 	SP mode adj. RV6/MD-59 (H-3) Conventional mode adj. RV5/MD-59 (J-4)
Step 2. • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the shorting clip.	With level B as 100% reference, $A = 75^{+0}_{-2}\%$ (SP mode) $A = 65 \pm 2\%$ (Conventional mode) (Read the level at the center of noise.)	TRIG : TP5/MD-59 (F-5)

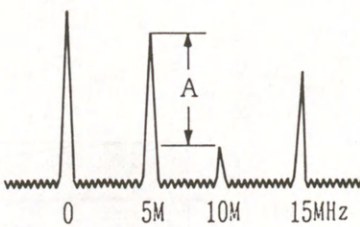
11-50. DARK CLIP ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Short between TP8/MD-59 (G-4) and TP9/MD-59 (G-4) with a shorting clip. • VIDEO IN connector : Pulse & Bar • Insert a KSP cassette tape. • EE mode • After the adjustment is completed, remove the shorting clip.	TP13/MD-59 (H-5)  With level B as 100% reference, $A = 65^{+0}_{-2}\%$ (SP mode) (Read the level at the center of noise.)	RV7/MD-59 (J-4) TRIG : TP5/MD-59 (F-5)

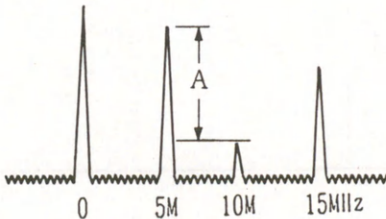
11-51. SUBCARRIER TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect between TP8/MD-59 (G-4) and TP9/MD-59 (G-4) with 1kohm resistor. • VIDEO IN Connector : Multiburst • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the resistor.	TP11/MD-59 (H-4)  Minimize the A level and make flattest B.	● LV1/MD-59 (J-4)

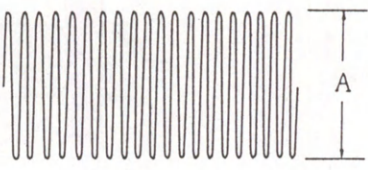
11-52. MODULATOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP10/MD-59 (G-3) Spectrum analyzer  Minimize the level at 10MHz ($A \geq 50\text{dB}$).	● RV2/MD-59 (H-4)

11-53. REC HF BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP15/MD-59 (K-5) Spectrum analyzer  Minimize the level at 10MHz ($A \geq 45\text{dB}$).	● RV8/MD-59 (J-2)

11-54. ROTARY ERASE CURRENT ADJUSTMENT

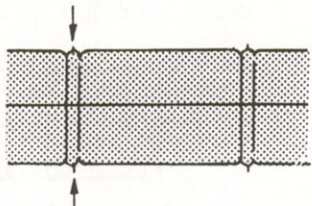
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • VIDEO INSERT mode	TP102/RP-40 (A-1) : CH-A TP103/RP-40 (A-1) : CH-B GND : E101/RP-40 (A-1)  $A = 1.0 \pm 0.02V$	CH-A : ⌚RV102/RP-40 (A-2) CH-B : ⌚RV101/RP-40 (A-2)

11-55. REC CURRENT FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments										
• Desolder the bridge between SL1/RP-40 (D-2) and SL2/RP-40 (D-2). • Short between TP1(B-2) and GND: and TP3(C-2) and E2(C-2) on the RP-40 board with shoting clips. • Connect between TP5(D-1) and TP6 (D-1):and TP8 (D-1) and TP9(D-1) on the RP-40 board with shorting clips. • Supply an RF sweep signal to TP3/RP-40. • Insert a KSP cassette tape. • VIDEO IN connector : Color-bar • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridges.	between TP5/RP-40 (D-1) and TP6/RP-40 (D-1) : CH-A between TP8/RP-40 (D-1) and TP9/RP-40 (D-1) : CH-B 1MHz 1MHz 7MHz 55mA/1MHz <table><tr><th>1MHz</th><th>3MHz</th><th>4.5MHz</th><th>7MHz</th><th>8MHz</th></tr><tr><td>100% (reference)</td><td>88 ± 5%</td><td>78 ± 5%</td><td>60 ± 10%</td><td>55 ± 5%</td></tr></table> • Use a current probe for observing the current.	1MHz	3MHz	4.5MHz	7MHz	8MHz	100% (reference)	88 ± 5%	78 ± 5%	60 ± 10%	55 ± 5%	CH-A : ⌚RV3/RP-40 (C-2) CH-B : ⌚RV5/RP-40 (C-1)
1MHz	3MHz	4.5MHz	7MHz	8MHz								
100% (reference)	88 ± 5%	78 ± 5%	60 ± 10%	55 ± 5%								
		TRIG : VD/SWEEP GEN										

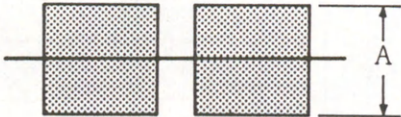
TRIG : VD/SWEEP GEN

11-56. Y REC CURRENT ADJUSTMENT

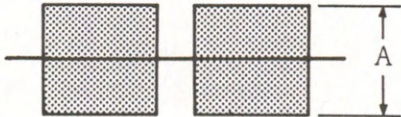
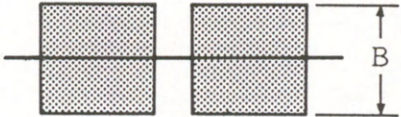
machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL1/RP-40 (D-2). • Connect between TP5/RP-40 and TP6/RP-40 with a shorting clip. • Short between TP1/RP-40 (B-2) and GND with a shorting clip. • VIDEO IN connector : Color-bar SP mode Adjustment • Insert a KSP cassette tape. • REC mode Conventional Mode Adjustment • Insert a KCA or KCS cassette tape. • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP-40 (D-1) and TP6/RP-40 (D-1)  A (at sync) SP mode adjustment : $A = 62 \pm 5 \text{mA}$ Conventional mode adjustment : $A = 70^{+8}_{-5} \text{mA}$ • Use a current probe for observing the current.	SP mode adj. ●RV8/RP-40 (C-2) Conventional mode adj. ●RV7/RP-40 (B-2) TRIG : TP1/MD-59 (F-3)

11-57. CHROMA REC CURRENT ADJUSTMENT

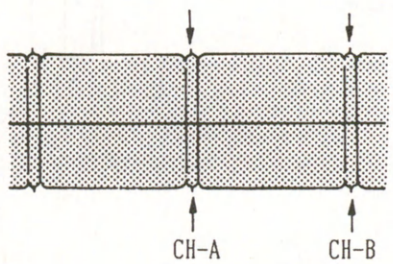
Step 1.

machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL1/RP-40 (D-2). • Connect between TP5/RP-40 and TP6/RP-40 with a shorting clip. • Short between TP3/RP-40 (C-2) and GND with shorting clip. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP40 (D-1) and TP6/RP-40 (D-1)  $A = 16 \pm 5\text{mA}$ • Use a current probe for observing the current.	RV1/RP-40 (B-2) TRIG : TP4/DM-69 (D-7)

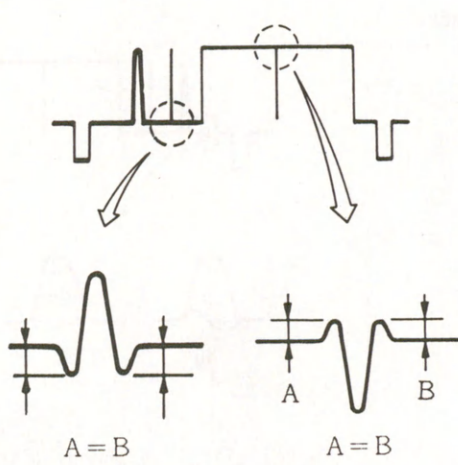
Step 2.

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the level at TP501/DM-69 using a TRACKING control.	TP501/DM-69 (C-2)  $A = \text{about } 200\text{mV}$	TRIG : TP4/DM-69 (D-7)
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape and put the unit into the REC/PB mode.	TP501/DM-69 (C-2)  $B = A \pm 15\%$ If the specification is not satisfied, readjust Step 1.	

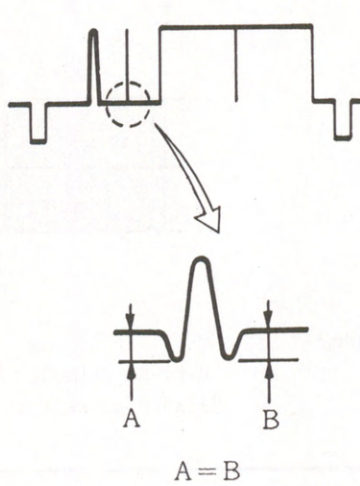
11-58. O. A Y RF OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Set the TRACKING control to the center click position. - VIDEO IN connector : Color-bar SP mode adj. - Insert a KSP cassette tape. - Play back the self recorded portion. Conventional mode adj. - Insert a KCA or KCS cassette tape. - Play back the self recorded portion.	TP5/DM-69 (E-9)  Level adjustment : $0.35 \pm 0.05V$ Balance adjustment : $CH-A = CH-B \pm 10\%$	Level adj. RV5/DM-69 (A-8) Balance adj. RV6/DM-69 (C-8) TRIG : TP4/DM-69 (D-7)

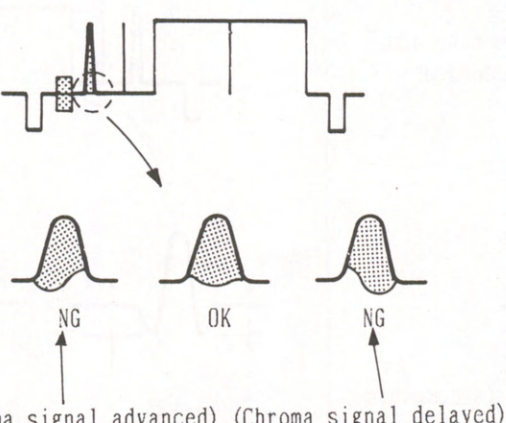
11-59. O. A DUB Y PHASE EQUALIZING ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- Short between TP2/MD-59 (G-7) and GND with a shorting clip. - VIDEO IN connector : Pulse & Bar - Insert a KSP cassette tape and play back the self recorded portion. - After the adjustment is completed, remove the shorting clip.	TP15/DM-69 (J-2)  A = B A = B	RV12/MD-59 (H-1) TRIG : TP509/DM-70 (E-2)

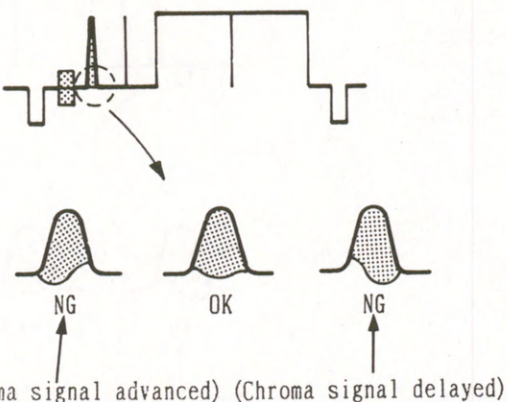
11-60. O. A CONVENTIONAL MODE Y PHASE EQUALIZING ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Pulse & Bar • Insert a KCA or KCS cassette tape and play back the self recorded portion.	TP15/DM-69(J-2) 	RV13/MD-59(H-1) TRIG : TP509/DM-70(E-2)

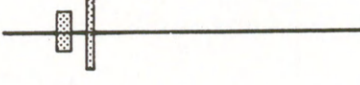
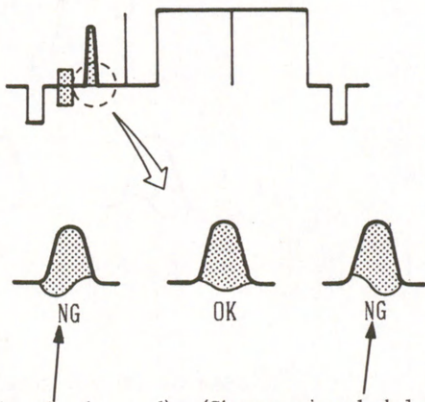
11-61. Y/C DELAY PB ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the pulse and bar segment(color) of the alignment tape RR5-1SD.	VIDEO OUT connector(terminated by 75 ohms) 	RV503/DM-69(B-4)

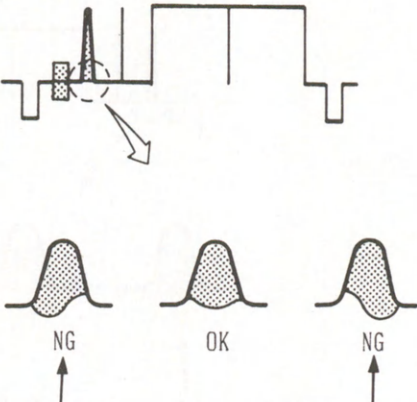
11-62. Y/C DELAY PB ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments
Play back the MOD 20T segment of the alignment tape RR5-4SB.	VIDEO OUT connector (terminated by 75 ohms)  (Chroma signal advanced) (Chroma signal delayed)	RV502/DM-69 (C-4)

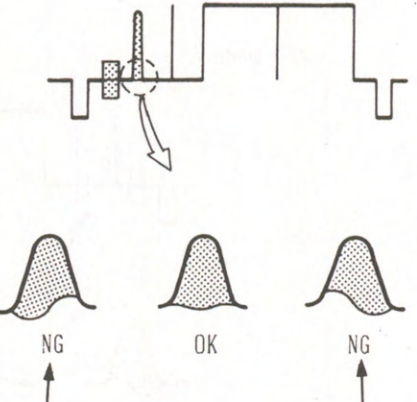
11-63. Y/C DELAY DUB ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
- Play back the pulse and bar segment (color) of the alignment tape RR5-1SD. - Oscilloscope : ADD mode.	CH-1 : TP15/DM-69 (J-2) CH-2 : TP504/DM-70 (G-9) TP15  TP504  ADD mode  (Chroma signal advanced) (Chroma signal delayed)	DL506/DM-70 (F-8) (When the chroma signal is advanced, adjust the SL number to the higher figure and solder the tap number at one higher figure after the specification is met.) TRIG : TP509/DM-70 (E-2)

11-64. Y/C DELAY REC ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments																		
• VIDEO IN connector : Pulse & Bar • Insert a KSP cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  (Chroma signal advanced) (Chroma signal delayed)	DL201/MD-59(N-1) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201(Soldering side) <table border="0"> <tr> <td>⊙</td><td>● 6</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 5</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 4</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 3</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 2</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 1</td><td>⊙</td></tr> </table> ↑ Slit for SP ↑ Slit for CONV TRIG : TP509/DM-70(E-2)	⊙	● 6	⊙	⊙	● 5	⊙	⊙	● 4	⊙	⊙	● 3	⊙	⊙	● 2	⊙	⊙	● 1	⊙
⊙	● 6	⊙																		
⊙	● 5	⊙																		
⊙	● 4	⊙																		
⊙	● 3	⊙																		
⊙	● 2	⊙																		
⊙	● 1	⊙																		

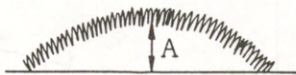
11-65. Y/C DELAY REC ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments																		
• VIDEO IN connector : Pulse & Bar • Insert a KCA or KCS cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  (Chroma signal advanced) (Chroma signal delayed)	DL201/MD-59(N-1) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201(Soldering side) <table border="0"> <tr> <td>⊙</td><td>● 6</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 5</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 4</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 3</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 2</td><td>⊙</td></tr> <tr> <td>⊙</td><td>● 1</td><td>⊙</td></tr> </table> ↑ Slit for SP ↑ Slit for CONV TRIG : TP509/DM-70(E-2)	⊙	● 6	⊙	⊙	● 5	⊙	⊙	● 4	⊙	⊙	● 3	⊙	⊙	● 2	⊙	⊙	● 1	⊙
⊙	● 6	⊙																		
⊙	● 5	⊙																		
⊙	● 4	⊙																		
⊙	● 3	⊙																		
⊙	● 2	⊙																		
⊙	● 1	⊙																		

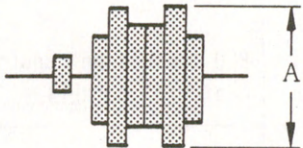
11-66. DG COMPENSATION ADJUSTMENT

Before this adjustment, perform the sec. 11-38. PB ACC LEVEL ADJUSTMENT.

Step 1.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 5 STEP • Adjust the vectorscope's GAIN control so that luminescent spots are on the circumference. • Insert a KSP cassette tape and play back the self recorded portion.	TP515/DM-70 (G-8) Vectorscope (DG mode)  Minimize the A $DG \leq 3\%$	RV513/DM-70 (E-4)

Step 2.

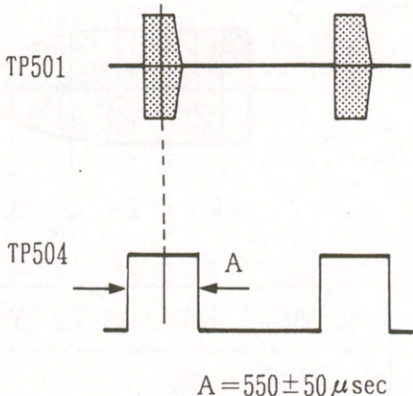
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70 (G-8)  $A = 0.8 \pm 0.05V$ (Check)	

11-67. Y/C MIXING ADJUSTMENT

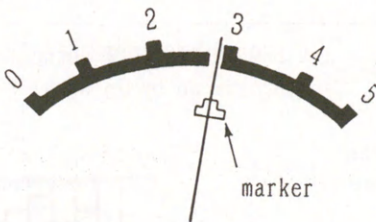
Before this adjustment, perform the sec. 11-16. Y OUTPUT LEVEL ADJUSTMENT (SP MODE) and the sec. 11-17. Y OUTPUT LEVEL ADJUSTMENT (CONVENTIONAL MODE.)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • Playback the self recorded portion.	VIDEO OUT 1 connector (terminated by 75 ohms) Vectorscope RED luminescent spots should be located in the center of mark	RV401/DM-69 (H-3)
	VIDEO OUT 1 connector (terminated by 75 ohms) Ringing center $A = 1.0 \pm 0.05V$	RV402/DM-69 (H-4)

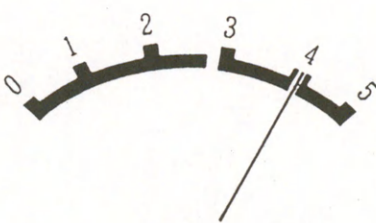
11-68. TIME CODE MUTE PULSE WIDTH ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the time code segment of the alignment tape RR5-1SD. (Only when this adjustment is performed, be possible to INSERT with REC cap.) • AUDIO CH-1 INSERT mode • After the adjustment is completed, remove the REC cap.	CH-1 : TP501/DM-69 (C-2) CH-2 : TP504/DM-69 (C-3)  $A = 550 \pm 50 \mu\text{sec}$	RV524/DM-69 (C-2) TRIG : CH104-13A/DN-69 (D-7)

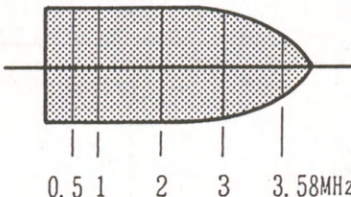
11-69. VIDEO METER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Wait for more than five minutes after power is turned on.	Video meter  Adjust the meter so that its pointer is on the center of the marker.	RV10/MD-59 (H-6)

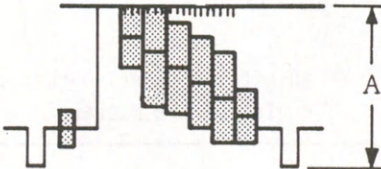
11-70. TRACKING METER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape and play back the self recorded portion. • Wait for more than five minutes after power is turned on.	Video/RF meter  Adjust the meter so that its pointer indicates scale 4.	RV9/MD-59 (J-7)

11-71. Y PB FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments										
• Short between TP502/DM-69 board (C-3) and GND with a shorting clip. • Play back the gated sweep (color) segment of the alignment tape RR5-1SD.	VIDEO OUT connector (terminated by 75 ohms)  <table><tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th><th>3.58MHz</th></tr><tr><td>100% (reference)</td><td>100 ± 5 %</td><td>95 ± 10%</td><td>90 +10% -5 %</td><td>60 +10% -5 %</td></tr></table>	0.5MHz	1MHz	2MHz	3MHz	3.58MHz	100% (reference)	100 ± 5 %	95 ± 10%	90 +10% -5 %	60 +10% -5 %	● CV3/DM-69 (H-6)
0.5MHz	1MHz	2MHz	3MHz	3.58MHz								
100% (reference)	100 ± 5 %	95 ± 10%	90 +10% -5 %	60 +10% -5 %								
• After the adjustment is completed, remove the shorting clip.												

11-72. PB CHARACTER MIX ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
- VIDEO IN connector : Color-bar - Indicate the ITEM No.104, TITLE (LARGE) in the DIAL MENU operation on the monitor (Refer to Section 2-11). - Select the ■ in the character menu area and set it one line in the title setup area. - Superimpose the title on the monitor.	VIDEO MONITOR OUT connector (terminated by 75 ohms)  A : Adjust the character signal portion to the white level.	● RV403/DM-69 (G-2)

SECTION 12

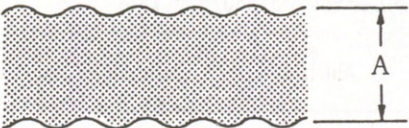
TIME CODE SYSTEM ALIGNMENT

[Equipment Required]

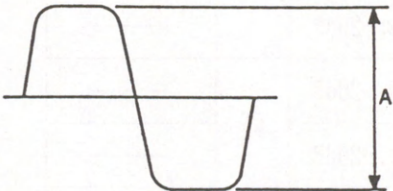
- Oscilloscope
- Square Wave Oscillator
- Cassette Tape : KSP-60
- Alignment Tape : RR5-1SD (Part No. 8-960-037-80)-SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	_____	OFF	_____
3	Gated sweep (B/W)	1kHz, 0dB		_____
3	Gated sweep (color)	10kHz, -10dB		_____
3	Pulse & Bar (color)	1kHz, -20dB		_____
		40Hz, -20dB		_____
		7kHz, -20dB		_____
		10kHz, -20dB		_____
		15kHz, -20dB		_____
2	Pulse & Bar (B/W)	1kHz, -20dB	ON	_____
		15kHz, -20dB		_____
2	Monoscope (color)	_____	OFF	_____
2	Pseudo color bars	_____		TIME CODE

12-1. TC PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the time code signal on alignment tape RR5-1SD.	TP405/NR-31(C-6) GND : E400/NR-31(A-6)  $A = 1.4 \pm 0.1V$	●RV401/NR-31(C-6) TRIG : TP4/SV-112(L-6)

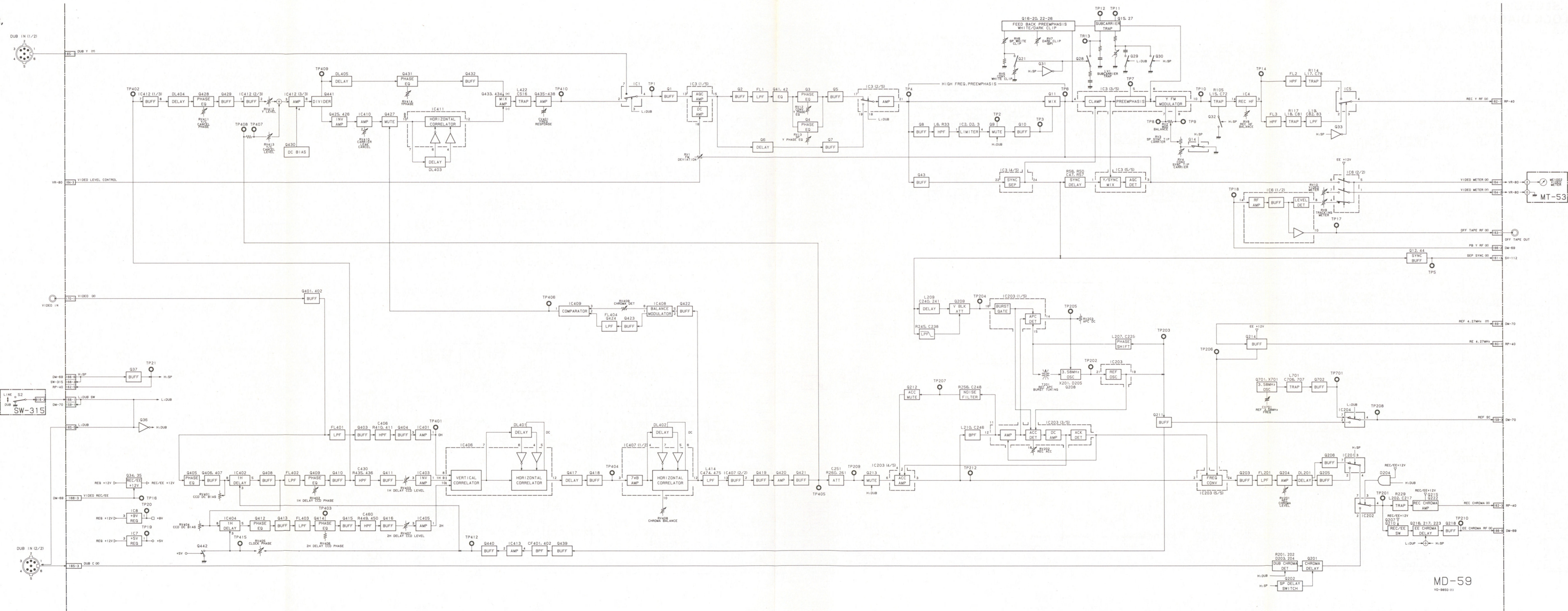
12-2. TC REC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• TIME CODE IN : 1.2kHz, 1Vp-p, square wave • VIDEO IN : color-bar • Insert the KSP-60 tape, and play back the recorded segment.	TP405/NR-31(C-6)  $A = 1.4 \pm 0.1V$	●RV402/NR-31(L-6) REC mode→adj PB mode→check

OVERALL

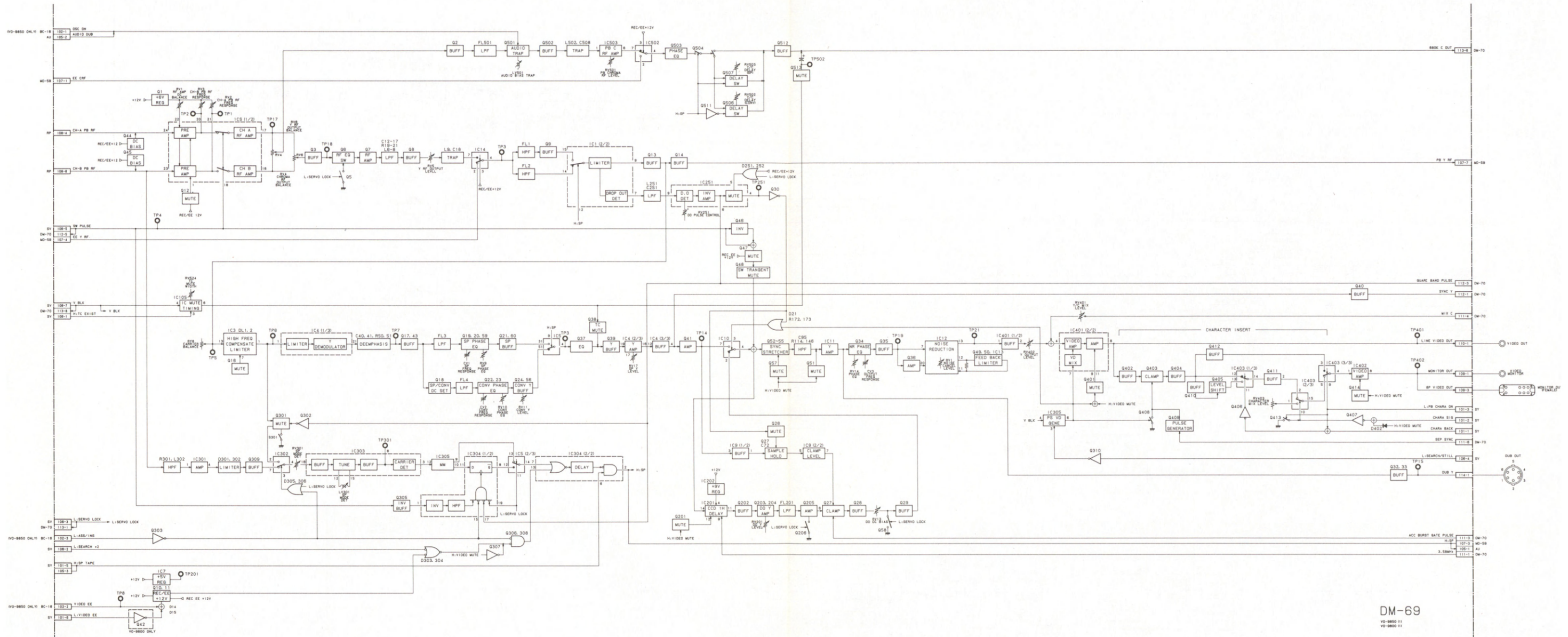


VIDEO SYSTEM
Y/C SEPARATOR, Y MODULATOR,
C REC PROCESSOR,
METER DRIVER

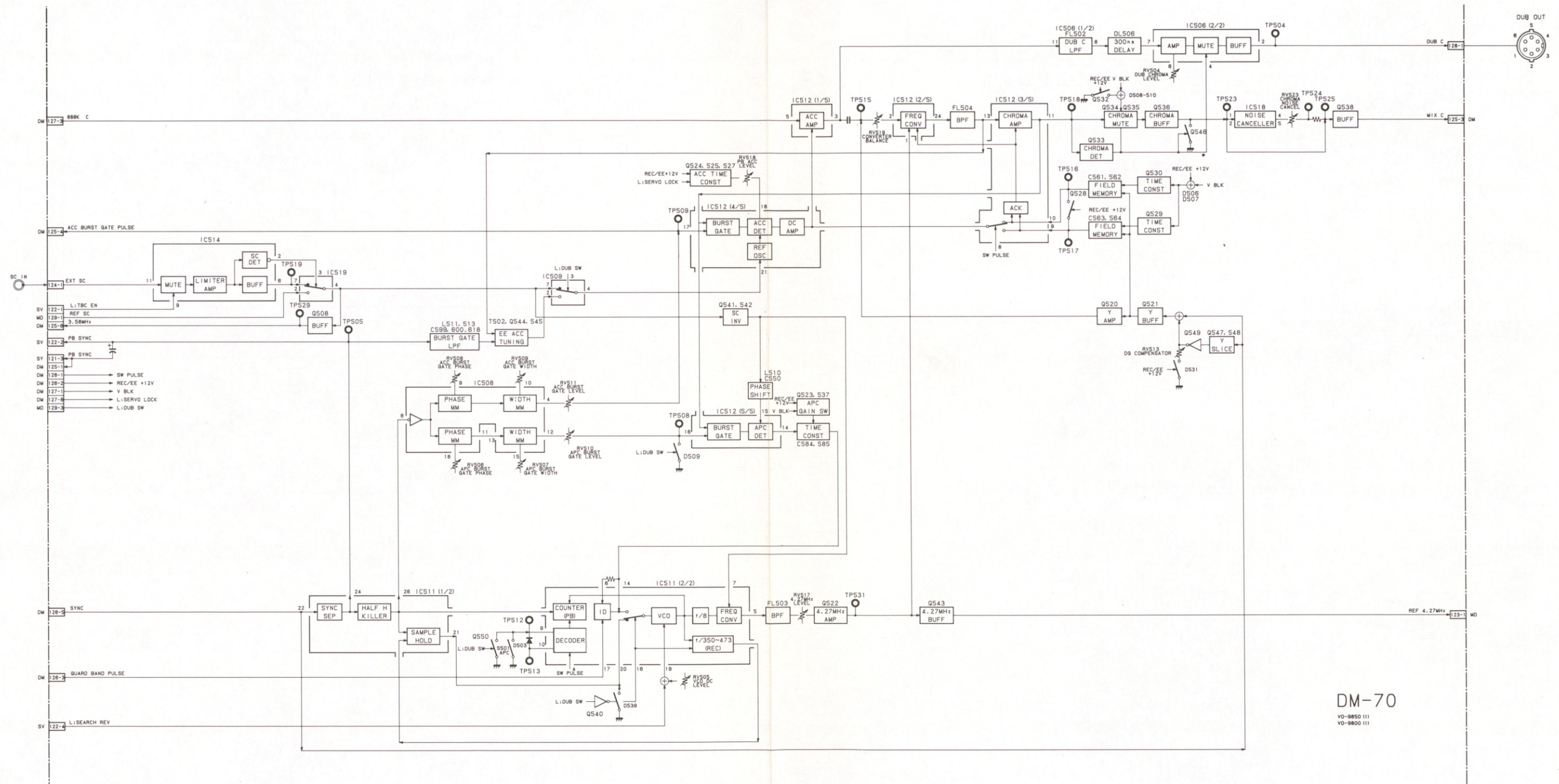


VIDEO SYSTEM

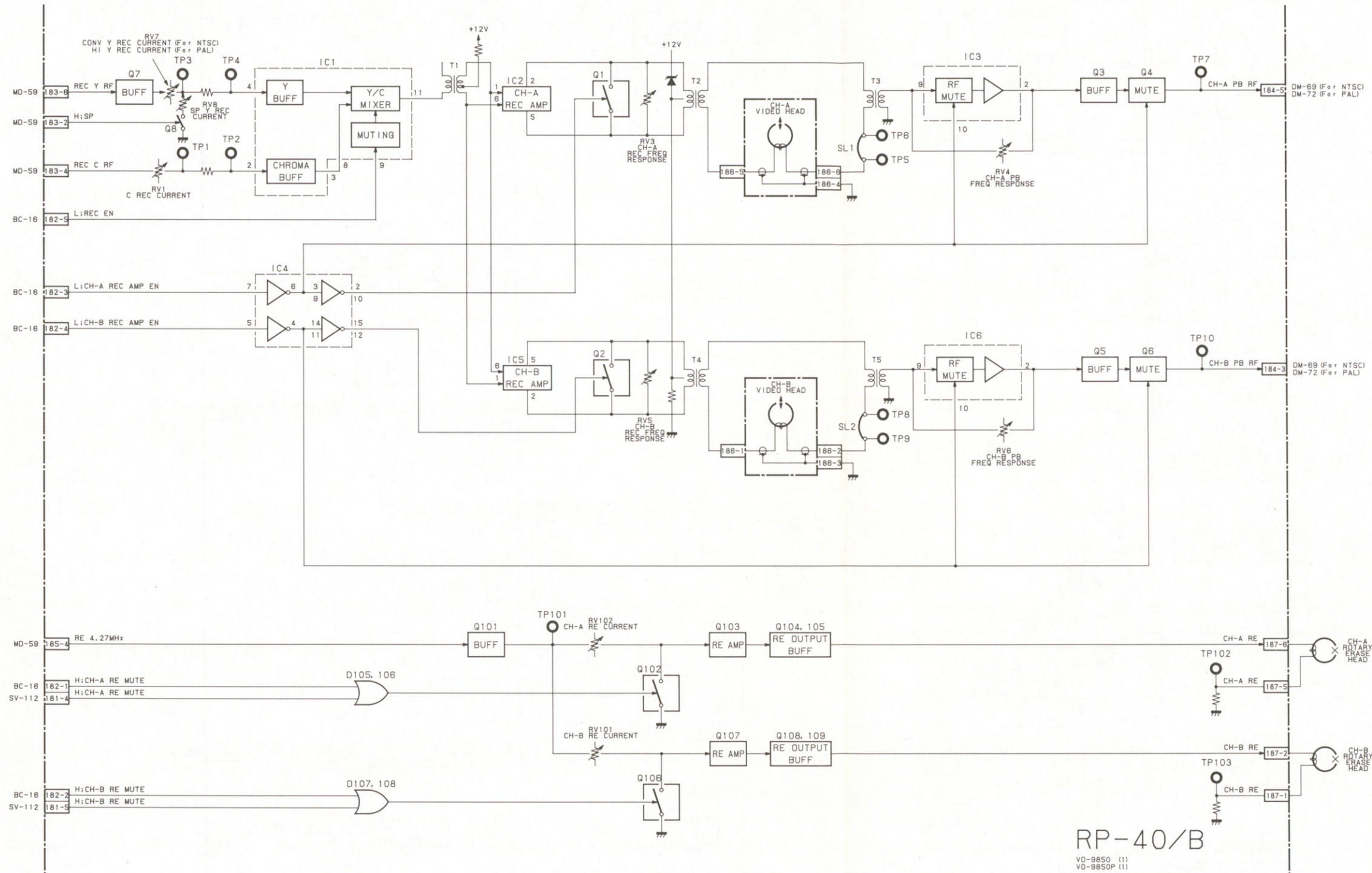
Y DEMODULATOR, SP DETECTOR, CHARACTER MIXER



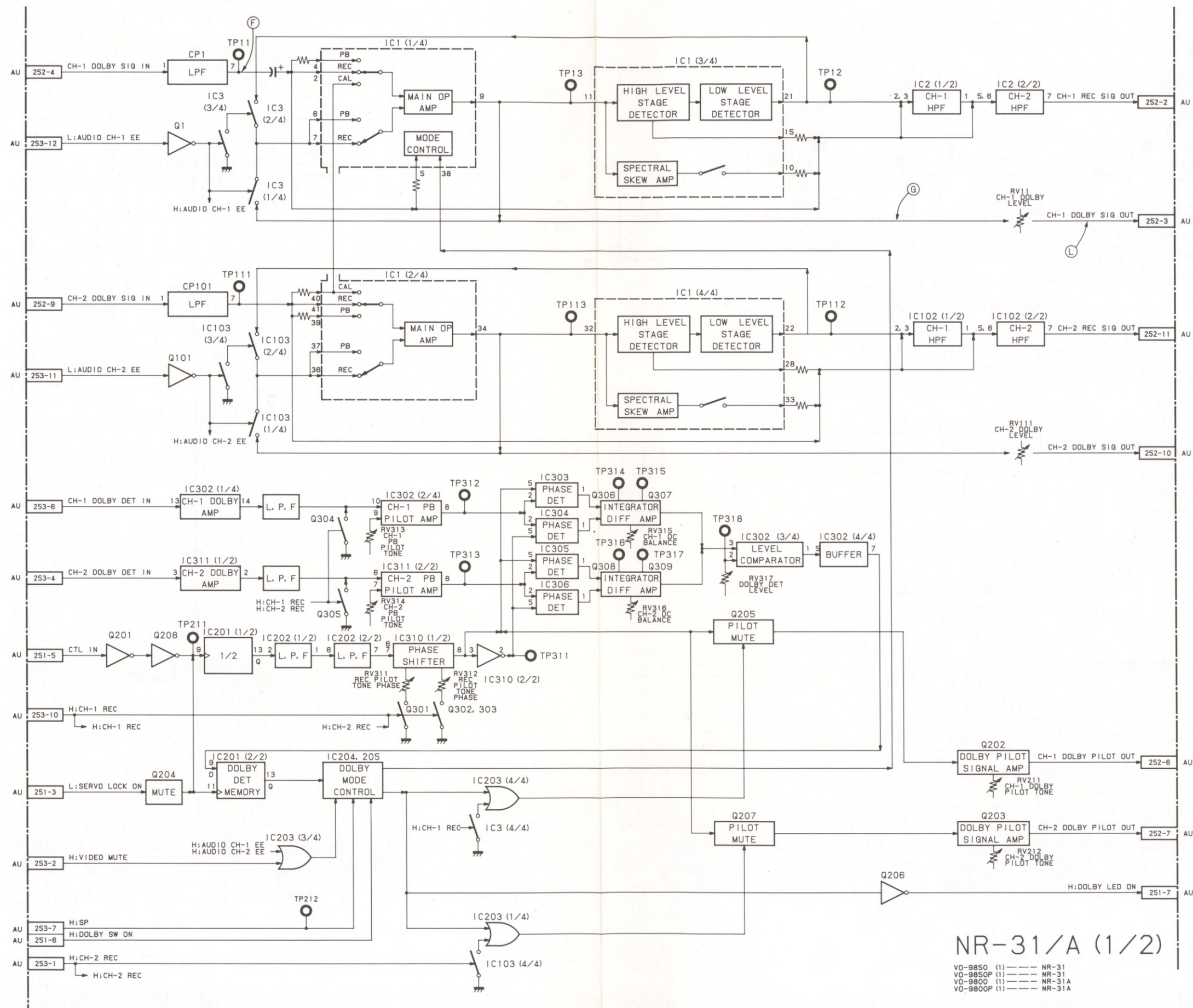
VIDEO SYSTEM C PB PROCESSOR



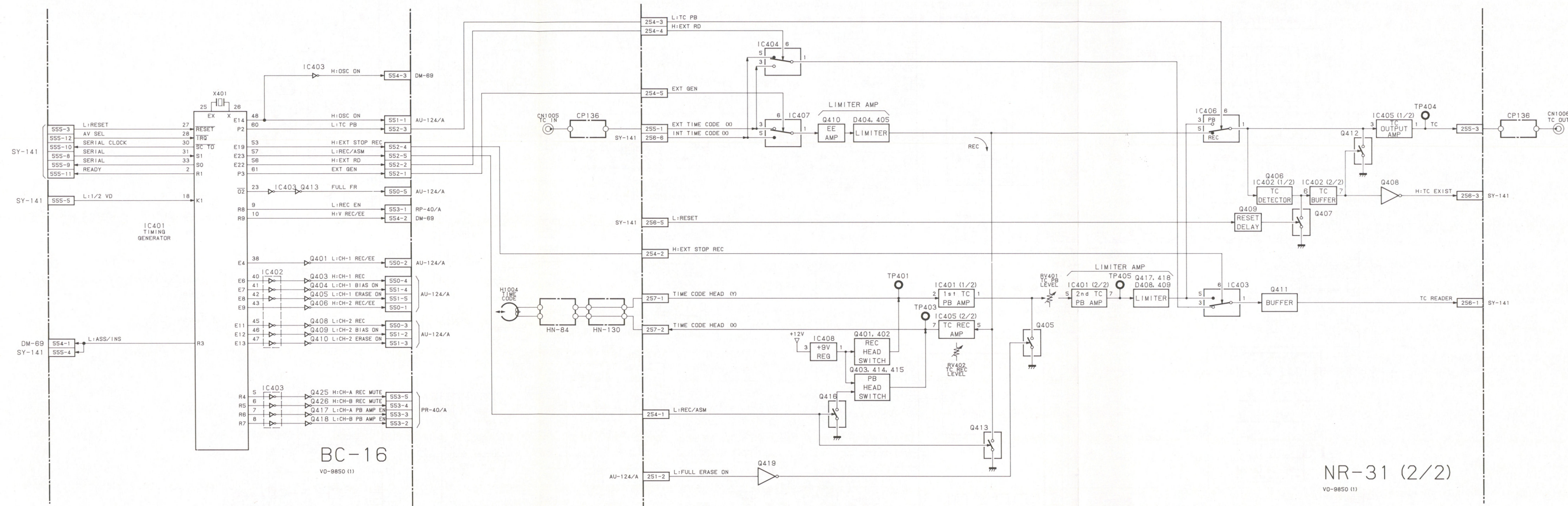
**VIDEO SYSTEM
REC/PB AMPLIFIER,
ROTARY ERASE DRIVER**



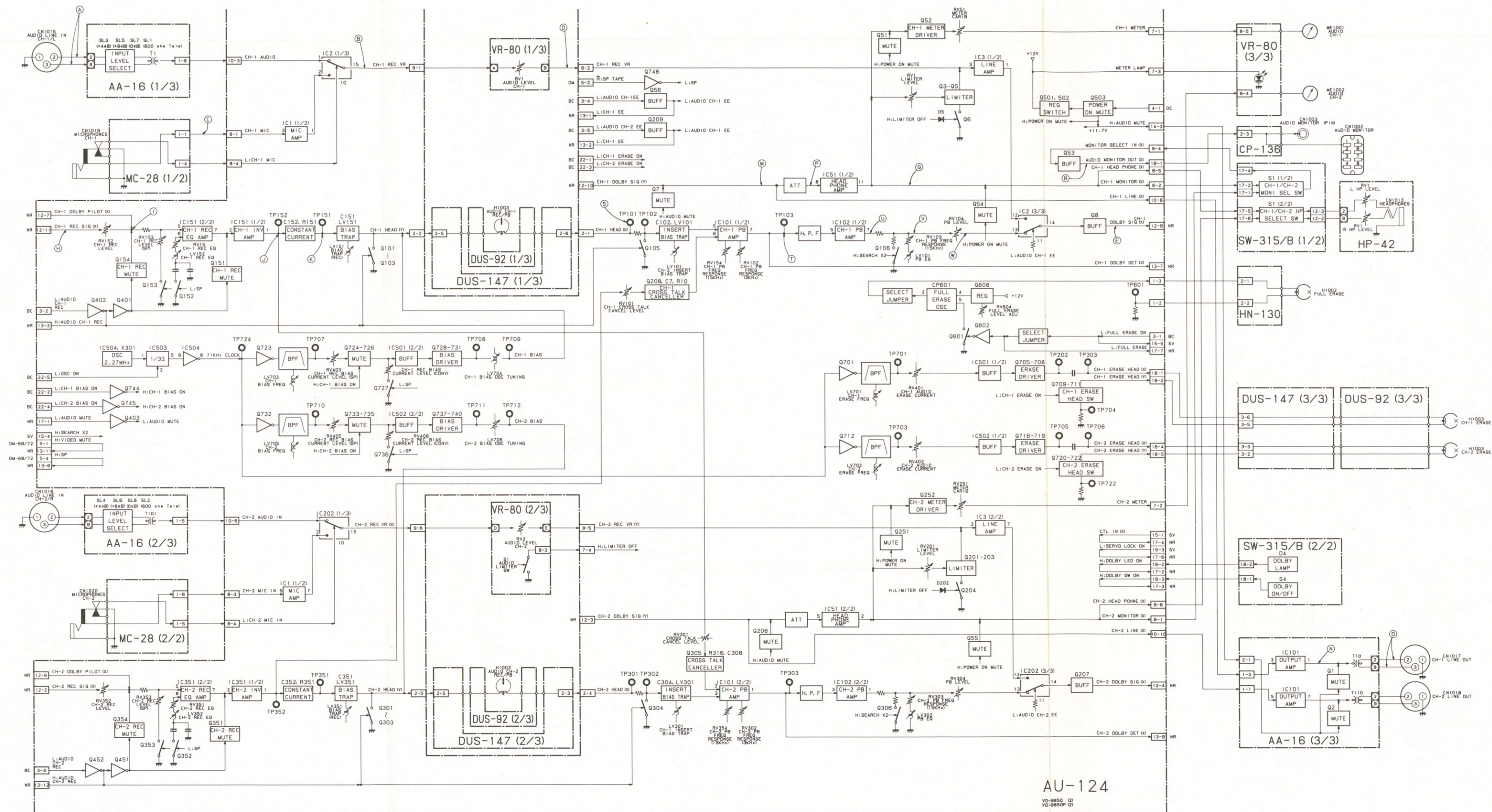
AUDIO SYSTEM
DOLBY NR,
NR PILOT
REC/PB



**AUDIO/TIME CODE SYSTEM
MODE CONTROL,
TIME CODE REC/PB**

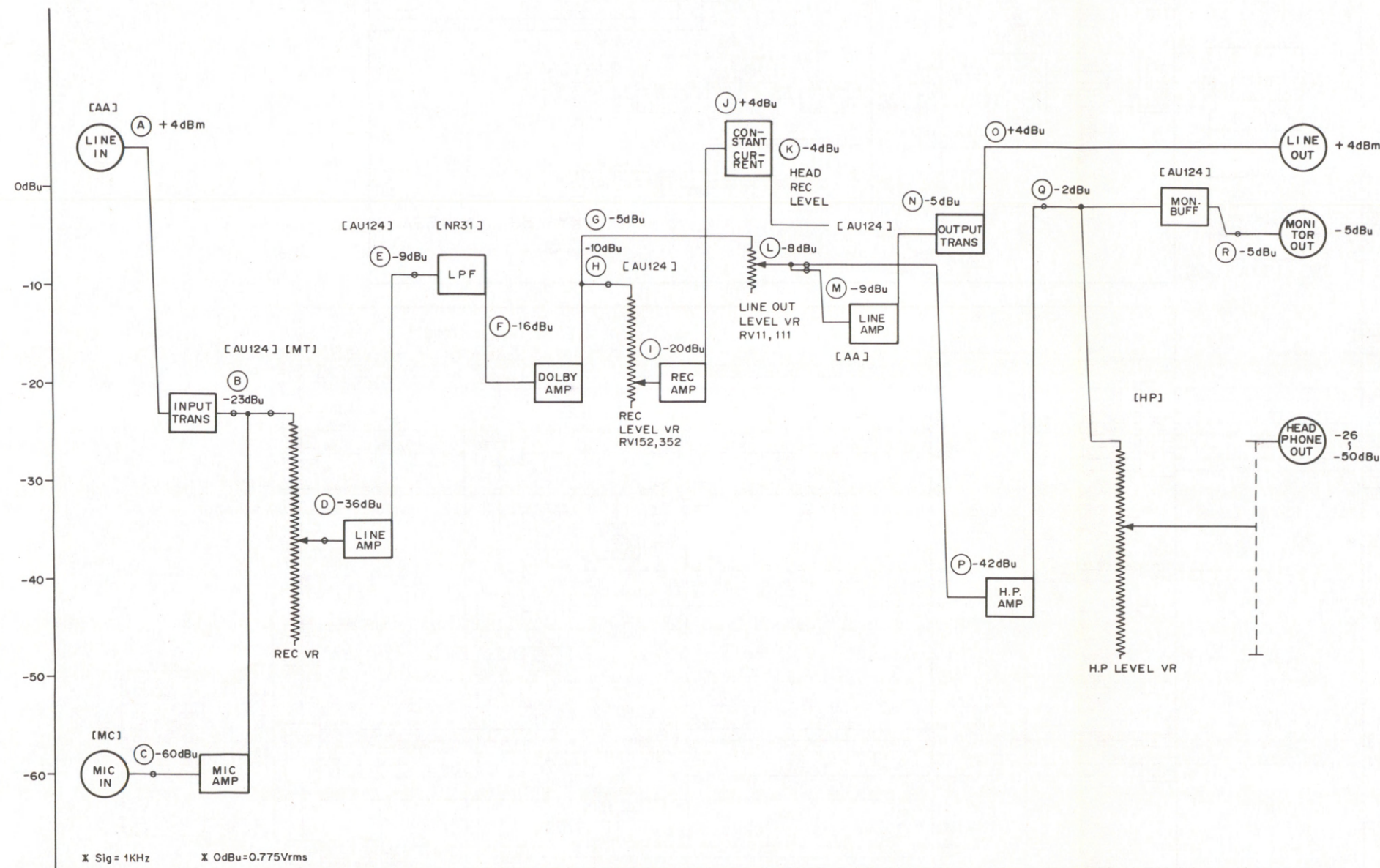


AUDIO AUDIO

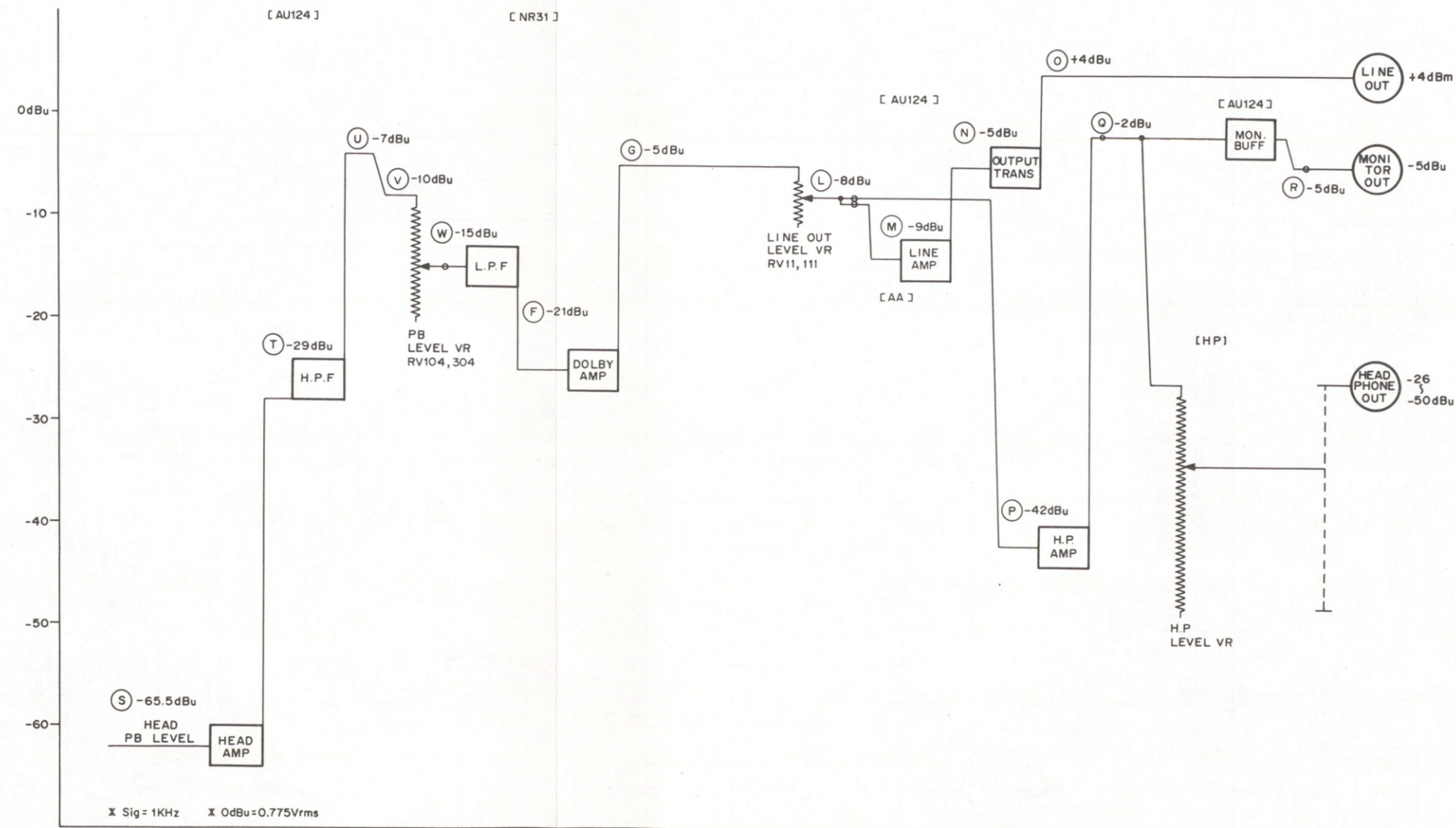


AUDIO LEVEL DIAGRAM

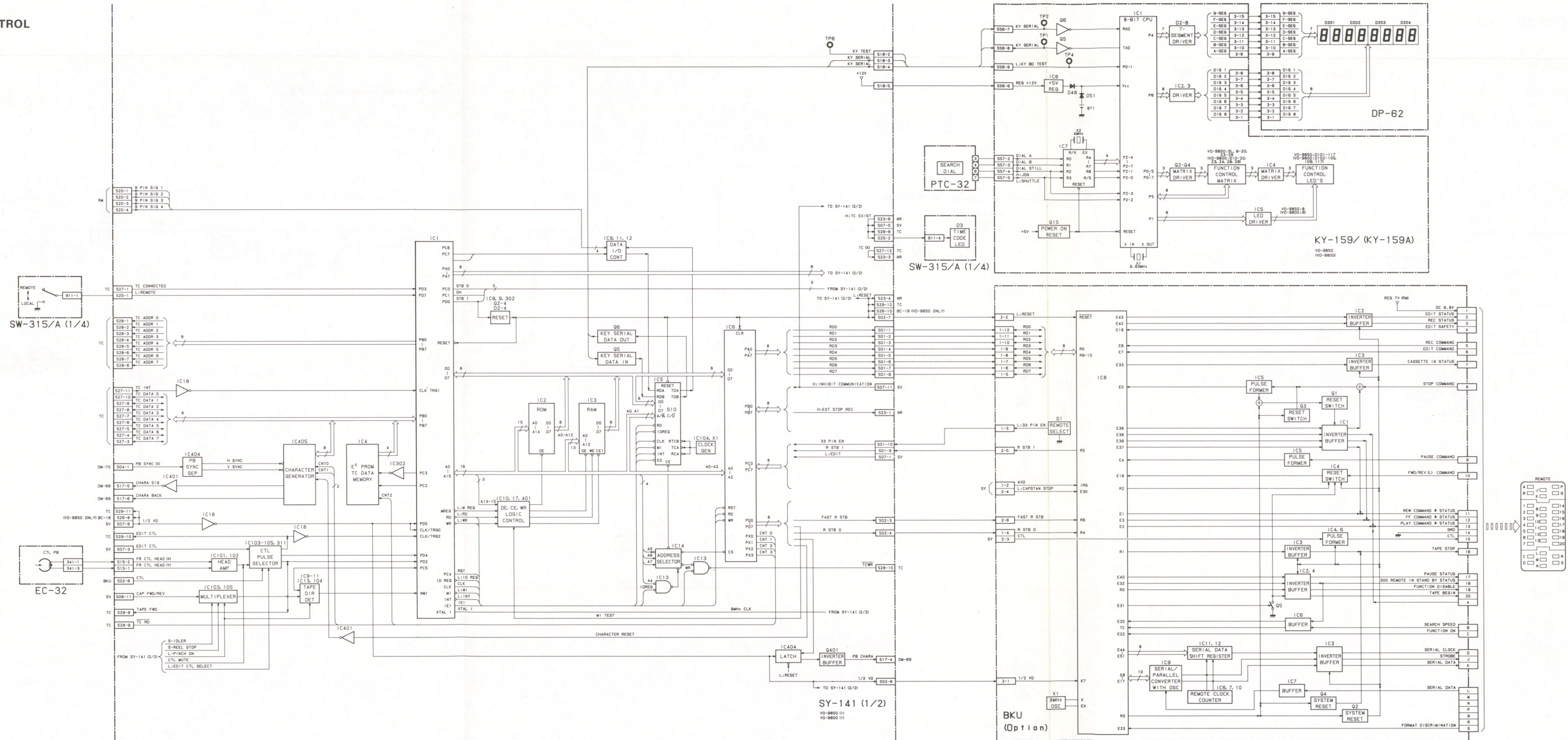
Audio Level Diagram EE, REC



Audio Level Diagram PB

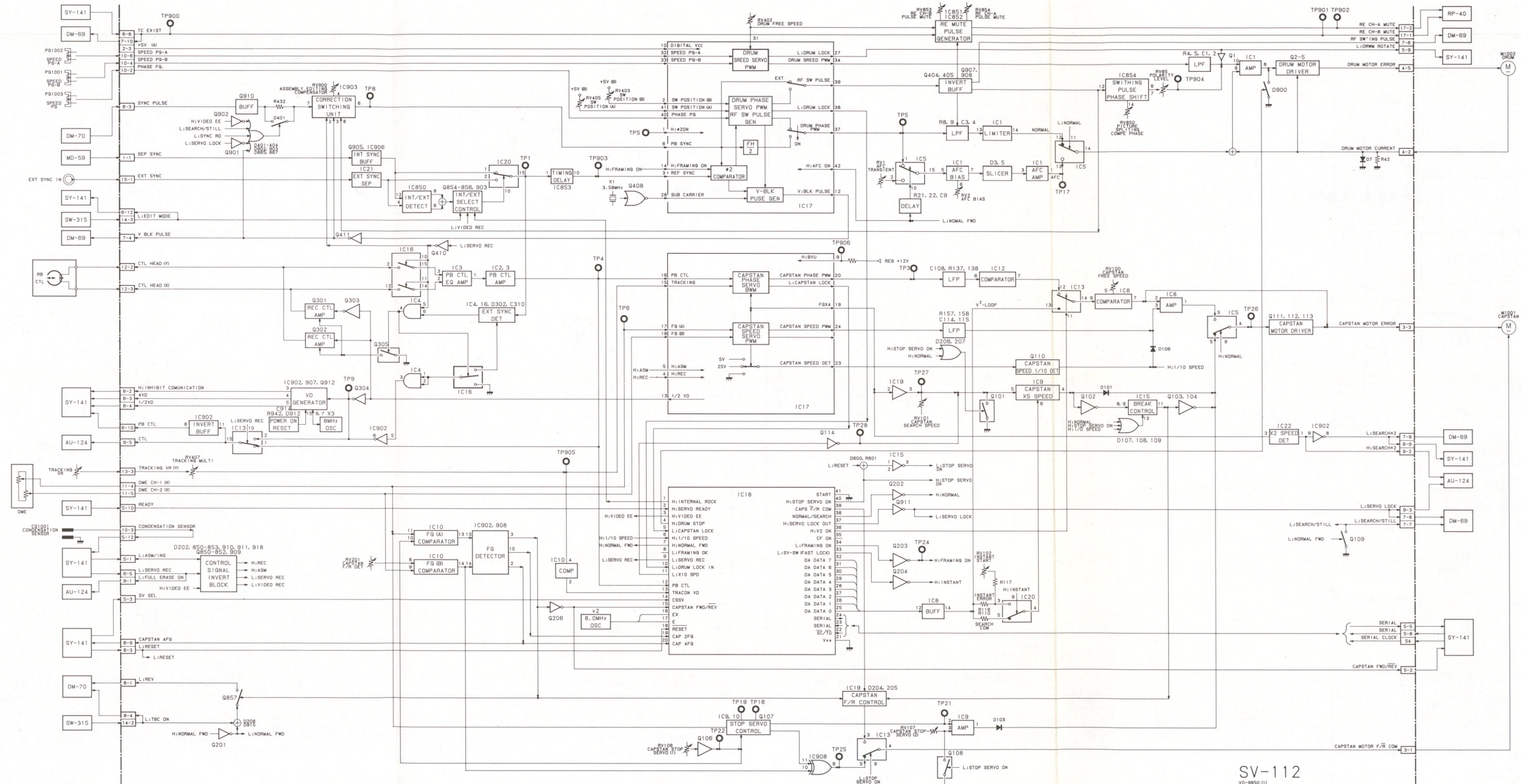


SYSTEM CONTROL



SYSTEM CONTROL





SECTION 14

SEMICONDUCTOR ELECTRODES

ここに記載されているIC、トランジスタ、ダイオードは、それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。)部品の交換をする時は、SPARE PARTSの章を参照して下さい。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

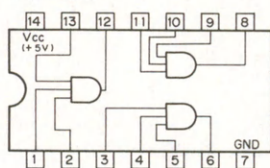
IC	PAGE	IC	PAGE	TRANSISTOR	PAGE
74F11PC	14-3	MB88303	14-11	2SA1115	14-16
74F32PC	14-3	MC14013BCP	14-12	2SA1175	14-16
		MC14538BCP	14-9	2SA1175F	14-16
AN607P	14-3	MC34051P	14-12	2SA768	14-16
AN608P	14-3			2SA771	14-16
		RC2043DD	14-12	2SB649A	14-16
BX1140L	14-3	RC78L05A	14-12	2SB733	14-16
BX1246L	14-3	RC78L09A	14-12	2SB822	14-16
BX1248L	14-3			2SC1740S	14-16
BX1250L	14-3	SN16913P	14-12	2SC1815	14-16
BX1251L	14-3	SN74HC04N	14-12	2SC1826	14-16
BX1257	14-3	SN74HC08N	14-12	2SC2785	14-16
BX1264L	14-3	SN74HC126N	14-12	2SC2785F	14-16
BX1265L	14-4	SN74HC139N	14-12	2SC2785K	14-16
BX373AL	14-4	SN74HC14N	14-13	2SC2878	14-16
BX388L	14-4	SN74HC32N	14-13	2SC3064	14-16
BX389L	14-4	SN74HC74N	14-13	2SC403SP	14-16
BX3915A	14-4			2SD1055	14-16
		TA706DAP	14-13	2SD1111	14-16
CX131A	14-4	TC4001UBP	14-13	2SD1682	14-16
CX134A	14-4	TC4009UBP	14-13	2SD669A	14-17
CX135	14-4	TC4011BP	14-13	2SD773	14-17
CX188	14-4	TC4015BP	14-13	2SD774	14-17
CX194B	14-5	TC4016BPHB	14-13	2SD894	14-17
CX20060	14-5	TC4024BP	14-14	2SD998	14-17
CX20061	14-5	TC4030BPHB	14-14	2SK523	14-17
CX20188	14-6	TC4053BP	14-14		
CX22013	14-7	TC4053BPHB	14-14	DTA124XS	14-17
CX23028	14-6	TC4069UBP	14-14	DTA143XS	14-17
CX859	14-7	TC4071BP	14-14	DTA144ES	14-17
CX872	14-7	TC4081BP	14-14	DTC124ES	14-17
CXA1020P	14-8	TC4538BP	14-9	DTC124XS	14-17
CXD1095Q	14-8	TMP284C011AF	14-15	DTC143TS	14-17
CXL5001P	14-9			DTC144ES	14-17
CXL5005P	14-9	μPC324C	14-14		
		μPC339C	14-14	SPS102	14-17
HD14538BP	14-9	μPC358C	14-14		
		μPC4558C	14-16		
LA4550	14-9	μPC78L05A	14-16		
LM2903DQ	14-9	μPC78M05H	14-16		
M50747H-601SP	14-10				
M5215L	14-10				
M54516P	14-10				
M54543L	14-10				
M54562P	14-11				
MB88201H-539N	14-11				

等価回路はICメーカーのData Bookに従いました。

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

DIODE	PAGE
10E-2	14-17
1S1555S	14-17
1SS119	14-17
1SS133	14-17
1SS97	14-17
1SS97-1	14-17
1SS99	14-17
BR5104S	14-17
FC54M	14-17
GL-5HD5	14-17
GP-1L52	14-17
GP-1L53	14-17
LB402VK	14-17
RD??EB?	14-17
RD??ESB?	14-17
TLUG154	14-17
U05E	14-17

74F11PC (FSC)
TTL 3-INPUT POSITIVE-AND GATE
— TOP VIEW —



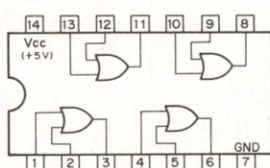
$$A \quad B \quad C \quad Y$$

$$Y = A \cdot B \cdot C = \overline{A+B+C}$$

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

0: LOW LEVEL
1: HIGH LEVEL

74F32PC (FSC)
TTL 2-INPUT POSITIVE-OR GATE
— TOP VIEW —



$$A \quad B \quad Y$$

$$Y = A + B = \overline{A \cdot B}$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

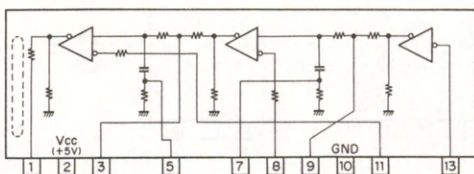
AN607P (MATSUSHITA)
AN608P (MATSUSHITA)
WIDE BAND AMPLIFIER
— PRINTED SIDE VIEW —



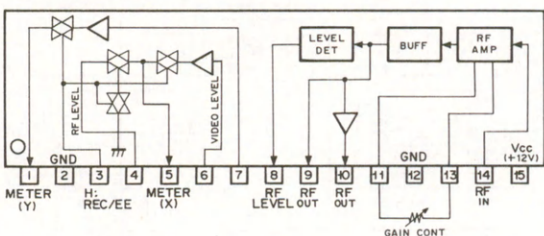
1: OUTPUT
2: Vcc (+12V)
3: INPUT
4: GND



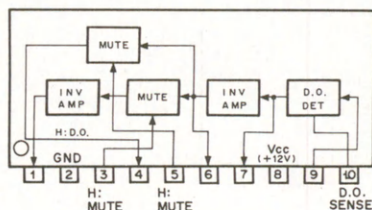
BX1140L (ROHM)
HF AMP
— REAR VIEW —



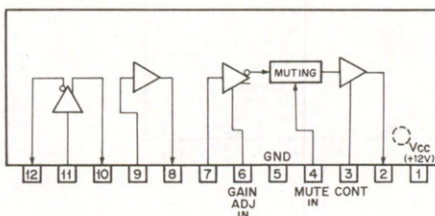
BX1246L (ROHM)
RF AND VIDEO LEVEL METER DRIVER
— PRINTED SIDE VIEW —



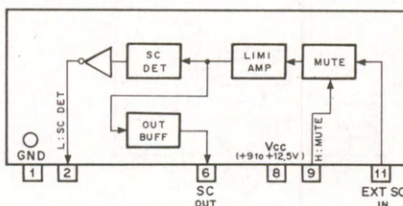
BX1248L (ROHM)
DROPOUT DETECTOR
— PRINTED SIDE VIEW —



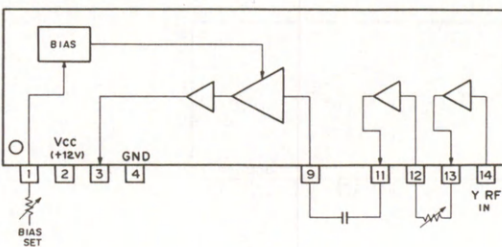
BX1250L (ROHM)
CHROMA OUTPUT AMPLIFIER
— REAR VIEW —



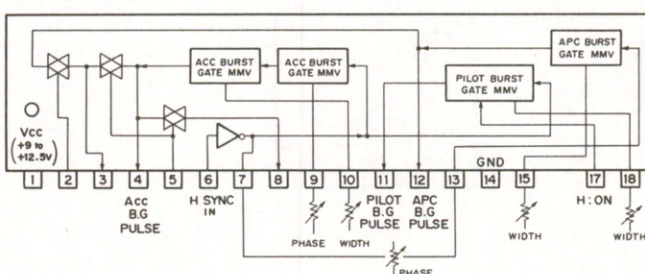
BX1251L (ROHM)
EXTERNAL SUBCARRIER AMPLIFIER
— PRINTED SIDE VIEW —



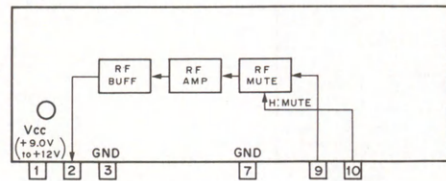
BX1257 (SONY)
Y-RF SIDE BAND EQUALIZER
— PRINTED SIDE VIEW —



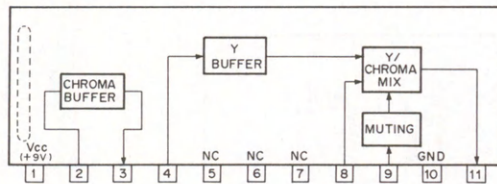
BX1264L (ROHM)
ACC/APC BURST GATE PULSE GENERATOR
— PRINTED SIDE VIEW —



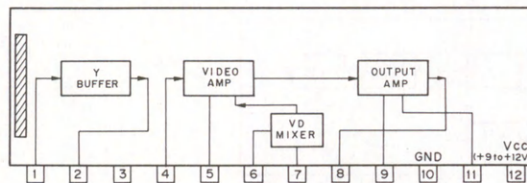
BX1265L (ROHM)
VIDEO HEAD AMPLIFIER/MUTING
— PRINTED SIDE VIEW —



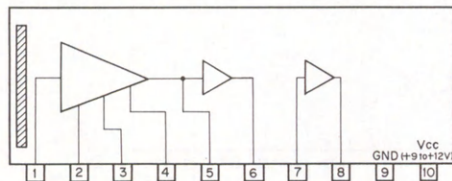
BX373AL (ROHM)
MIX AMP
— REAR VIEW —



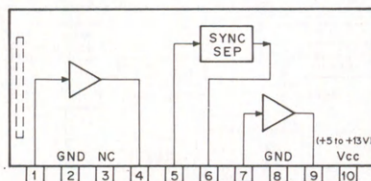
BX388L (ROHM)
VIDEO AMP/VD MIXER
— PRINTED SIDE —



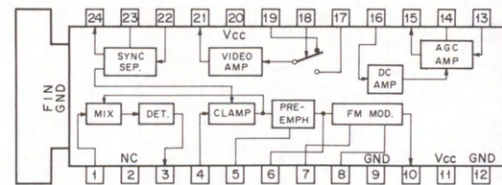
BX389L (ROHM)
VIDEO AMPLIFIER
— PRINTED SIDE —



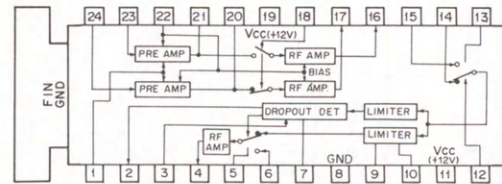
BX3915A (SONY)
SYNC SEPARATOR
— PRINTED SIDE —



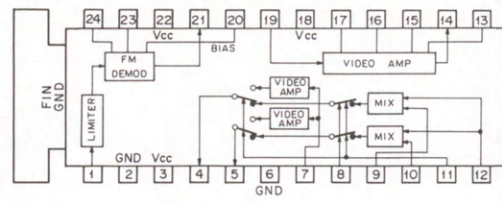
CX131A (SONY)
— TOP VIEW —



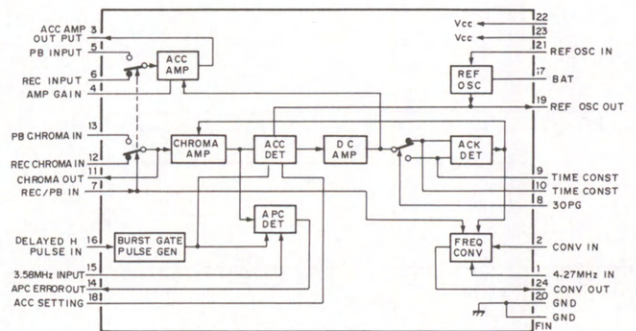
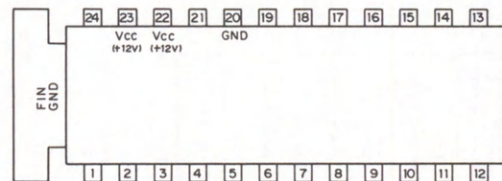
CX134A (SONY)
HEAD AMP/DROPOUT COMPENSATOR
— TOP VIEW —



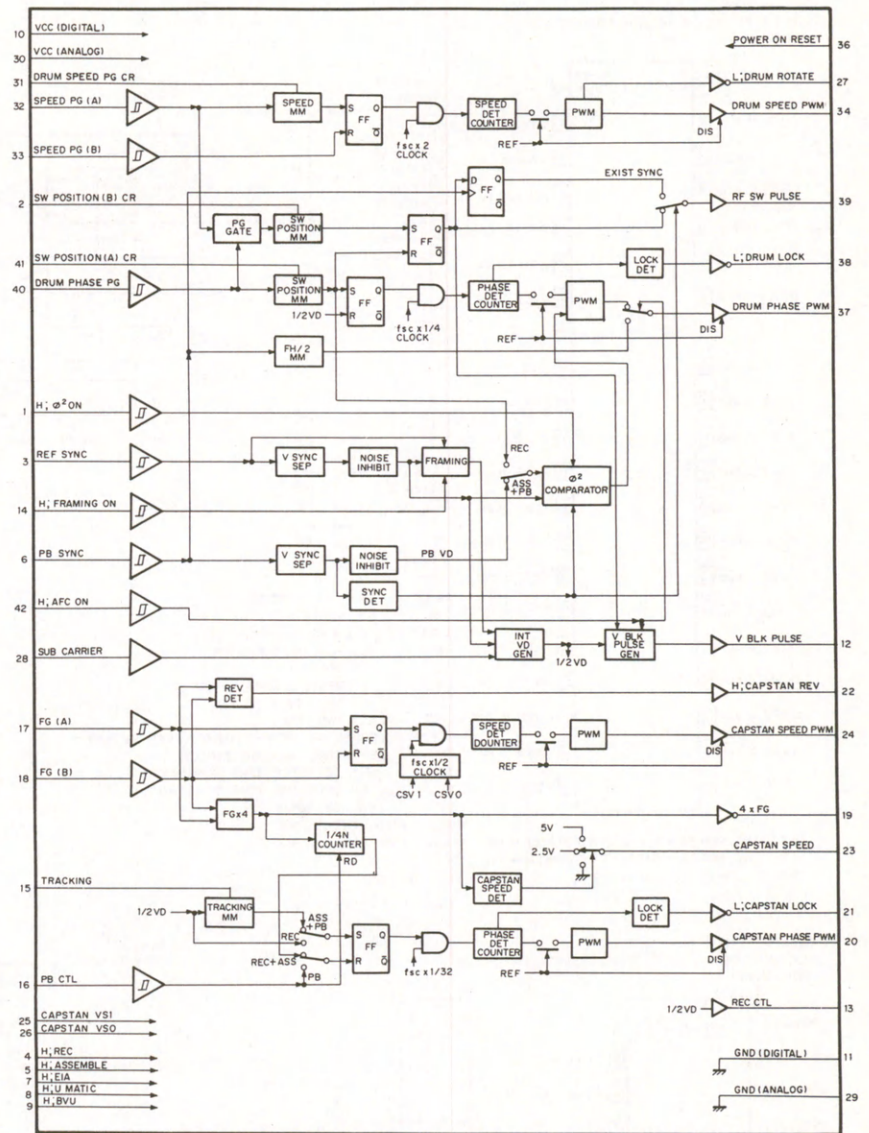
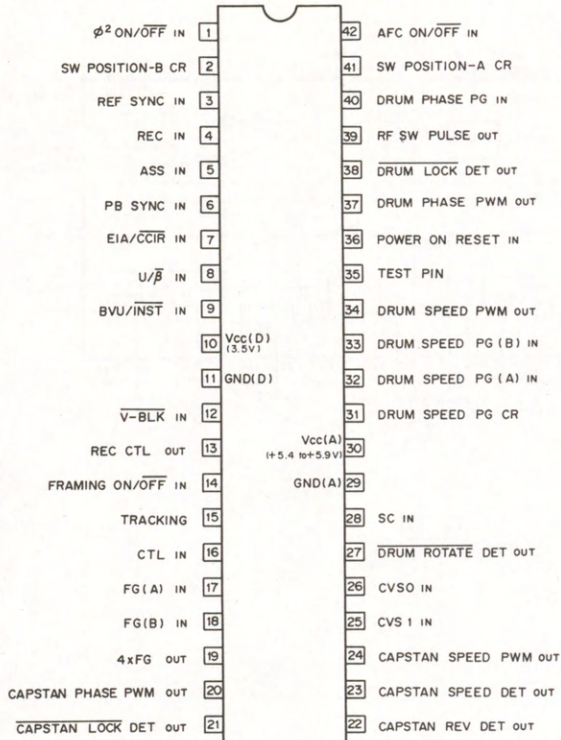
CX135 (SONY)
— TOP VIEW —



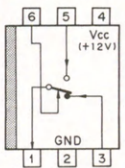
CX188
CHROMINANCE SIGNAL PROCESSOR
— TOP VIEW —



CX194B (SONY)
DRUM/CAPSTAN PWM SERVO
— TOP VIEW —

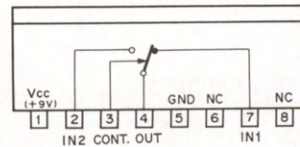


CX20060 (SONY)
ANALOG SWITCH
— TOP VIEW —



CONT. INPUT (PIN 6)	SW
LOW OR OPEN	
HIGH	

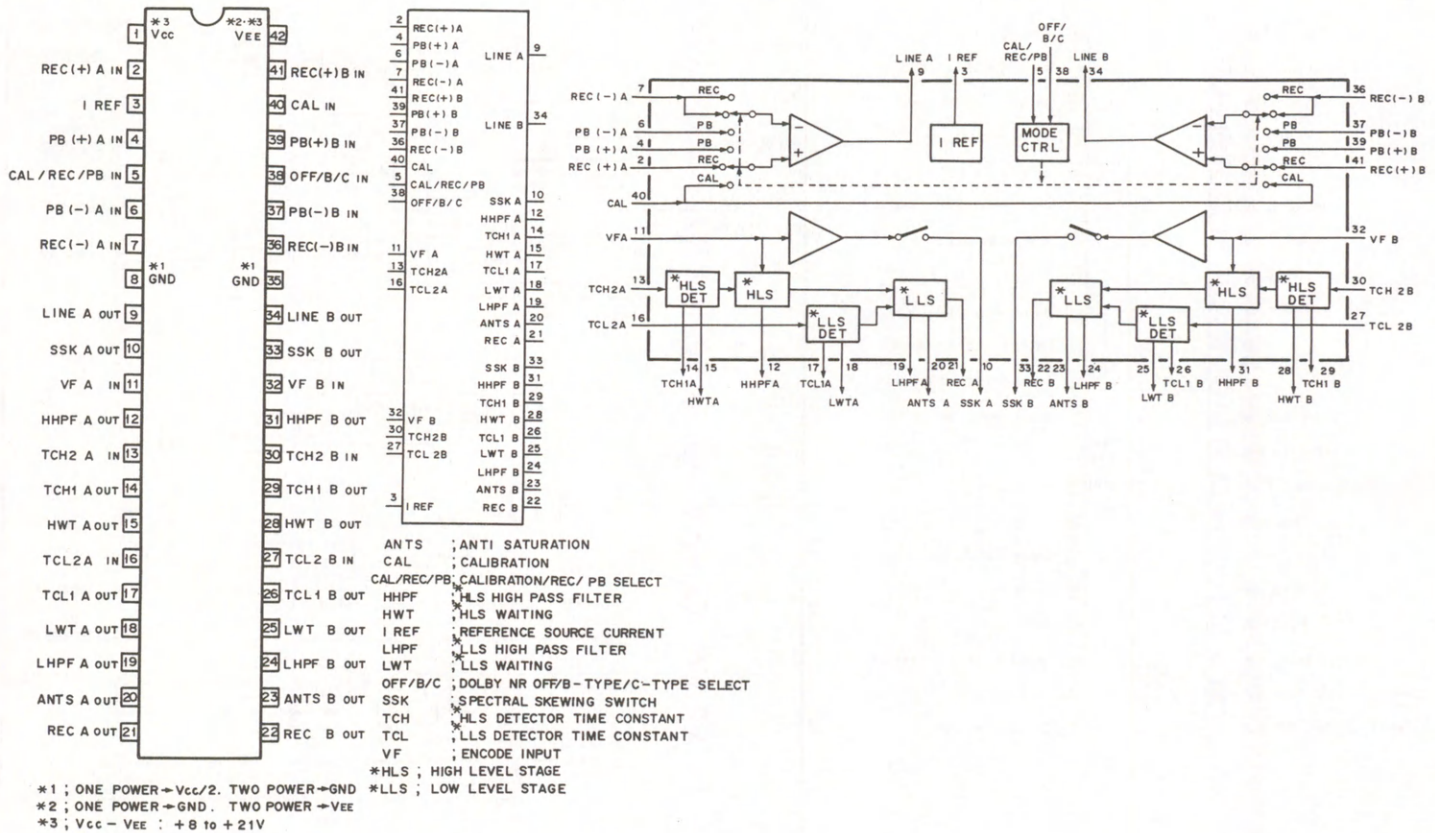
CX20061 (SONY)
ANALOG SWITCH
— SIDE VIEW —



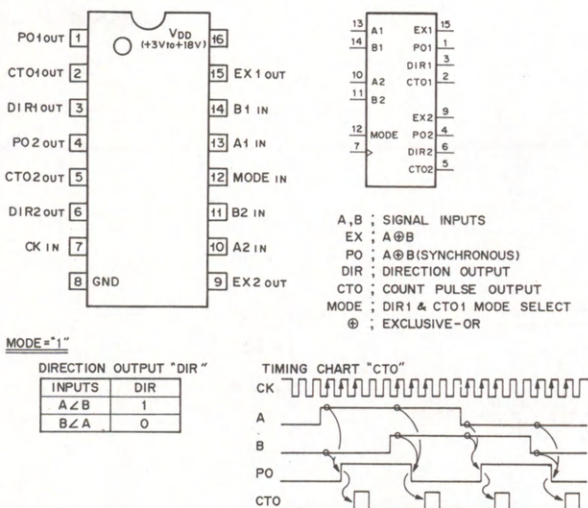
CONT	SW
0	
1	

0; LOW LEVEL
1; HIGH LEVEL

CX20188 (SONY)
DOLBY B TYPE AND C TYPE, NOISE REDUCTION SYSTEM
— TOP VIEW —



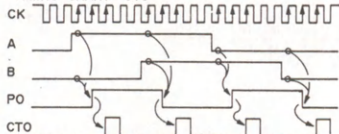
CX23028 (SONY)
C-MOS SYNCHRONOUS ROTATIONAL DIRECTION DETECTOR
— TOP VIEW —



MODE="1"

DIRECTION OUTPUT "DIR"	
INPUTS	DIR
A < B	1
B < A	0

TIMING CHART "CTO"



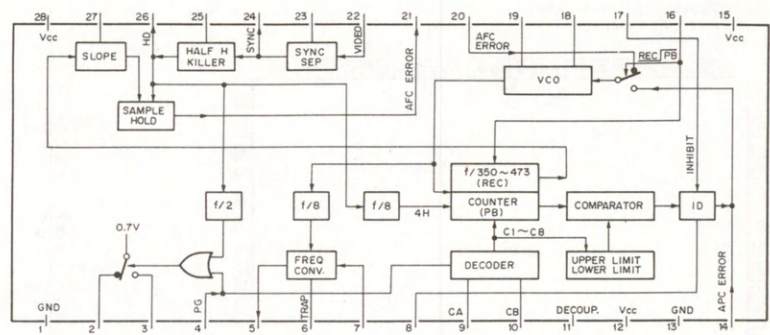
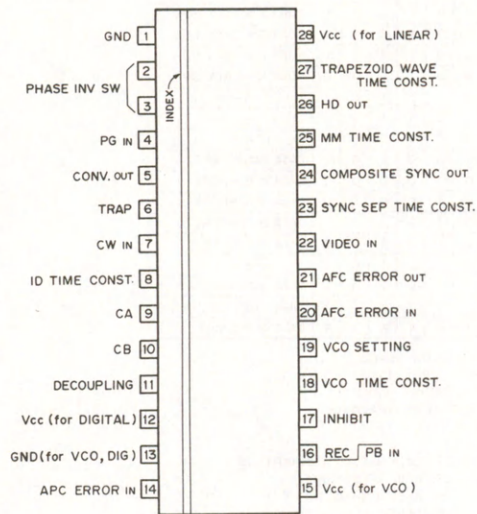
MODE="0"

DIRECTION OUTPUT "DIR"			
CH1	CH2	DIR 1	DIR 2
A1 < B1	A2 < B2	1	
B1 < A1	A2 < B2	0	
A1 < B1	B2 < A2	1	
B1 < A1	B2 < A2	0	

CTO 1; CTO1 with MODE "0" = CTO1 with MODE "1" + CTO 2
CTO 2; THE SAME FUNCTION OF MODE "1"

1; HIGH LEVEL
0; LOW LEVEL

A < B; THE PHASE OF SIGNAL A IS IN ADVANCE FOR THE PHASE OF B.

CX859 (SONY)
 — TOP VIEW —


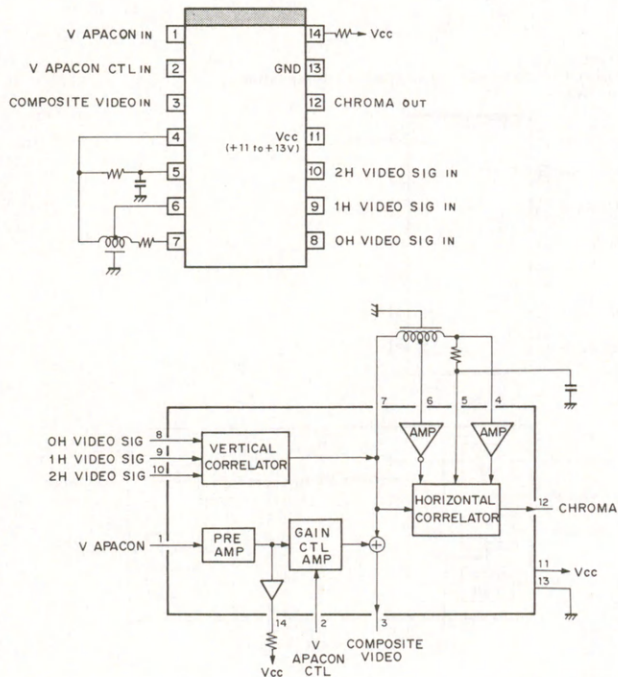
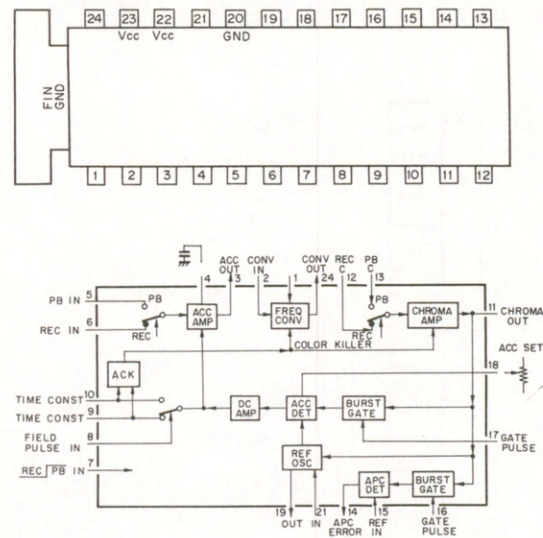
DECODER TRUTH TABLE

CB	LOW	OPEN	HIGH
CA			
LOW	C1	C7	—
OPEN	C4	C5	C6
HIGH	—	* C2 C3	C8

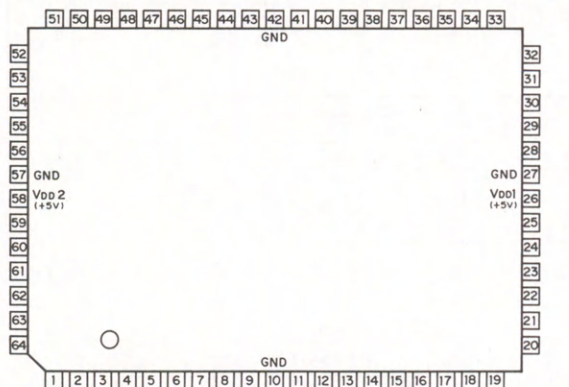
* PG : L --- C2
PG : H --- C3

AFC/APC PRESET DATA

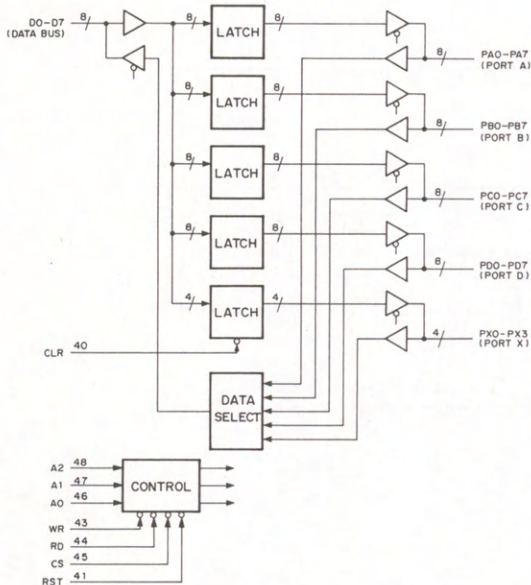
	AFC COUNT DOWN	APC ID COUNT UPPER LIM.	APC ID COUNT LOWER LIM.
C1	$f/473$	105	95
C2	$f/351$	129	119
C3	$f/353$	137	127
C4	$f/351$	118	104
C5	$f/351$	131	117
C6	$f/351$	144	130
C7	$f/350$	136	104
C8	—	125	115

CX22013 (SONY)
 DYNAMIC COMB FILTER
 — TOP VIEW —

CX872 (SONY)
 — TOP VIEW —


CXD1095Q (SONY) FLAT PACKAGE
C-MOS I/O PORT EXPANDER
— TOP VIEW —



PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	O	O	PC6	33			NC	49	O	O	PX0
2			NC	18	O	O	PC7	34			NC	50	O	O	PX1
3	O	O	PB1	19			NC	35	O	O	D3	51			NC
4	O	O	PB2	20	O	O	PDO	36	O	O	D4	52	O	O	PX2
5	O	O	PB3	21	O	O	PD1	37	O	O	D5	53	O	O	PX3
6	O	O	PB4	22	O	O	PD2	38	O	O	D6	54	O	O	PA0
7	O	O	PB5	23	O	O	PD3	39	O	O	D7	55	O	O	PA1
8	O	O	PB6	24	O	O	PD4	40	O		CLR	56	O	O	PA2
9	O	O	PB7	25			GND	41	O		RST	57			GND
10			GND	26	O		VDD(+5V)	42			GND	58	O		VDD(+5V)
11	O	O	PC0	27	O	O	PD5	43	O		WR	59	O	O	PA3
12	O	O	PC1	28	O	O	PD6	44	O		RD	60	O	O	PA4
13	O	O	PC2	29	O	O	PD7	45	O		CS	61	O	O	PA5
14	O	O	PC3	30	O	O	D0	46	O		A0	62	O	O	PA6
15	O	O	PC4	31	O	O	D1	47	O		A1	63	O	O	PA7
16	O	O	PC5	32	O	O	D2	48	O		A2	64	O	O	PB0

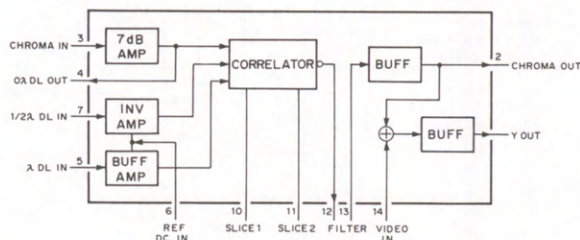
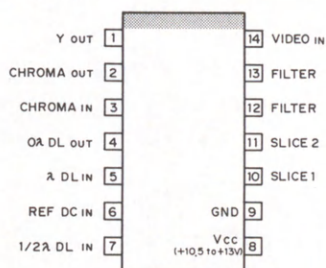


PIN	SYMBOL	MODE
54	PA0	CS
55	PA1	RD
56	PA2	WR
59	PA3	A2
60	PA4	A1
61	PA5	A0
62	PA6	MODE
63	PA7	
64	PB0	
3	PB1	
4	PB2	
5	PB3	
6	PB4	
7	PB5	
8	PB6	
9	PB7	
11	PC0	
12	PC1	
13	PC2	
14	PC3	
15	PC4	
16	PC5	
17	PC6	
18	PC7	
20	PDO	
21	PD1	
22	PD2	
23	PD3	
24	PD4	
27	PD5	
28	PD6	
29	PD7	
41	RST	
43	WR	
44	CS	
45	RD	
46	A0	
47	A1	
48	A2	
49	PX0	
50	PX1	
52	PX2	
53	PX3	

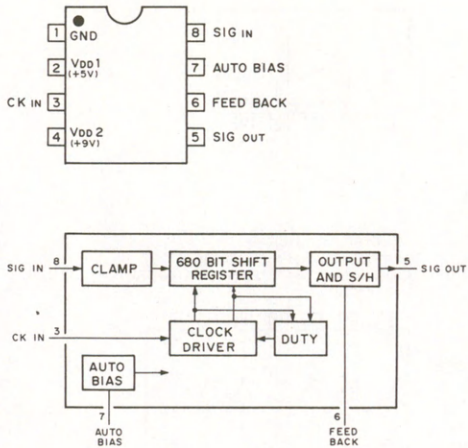
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z, HIGH IMPEDANCE

D0-D7; DATA BUS INPUTS/OUTPUTS
CS; CHIP SELECT INPUT
RD; READ STROBE INPUT
WR; WRITE STROBE INPUT
A0-A2; ADDRESS INPUT
RST; RESET INPUT
CLR; CLEAR INPUT
PA0-PA7; PORT A INPUTS/OUTPUTS
PB0-PB7; PORT B INPUTS/OUTPUTS
PC0-PC7; PORT C INPUTS/OUTPUTS
PD0-PD7; PORT D INPUTS/OUTPUTS
PX0-PX3; PORT X INPUTS/OUTPUTS

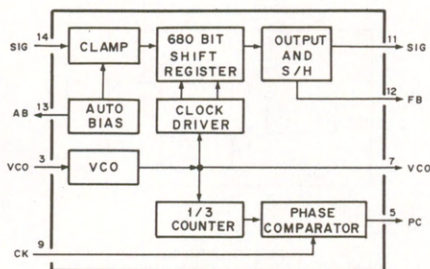
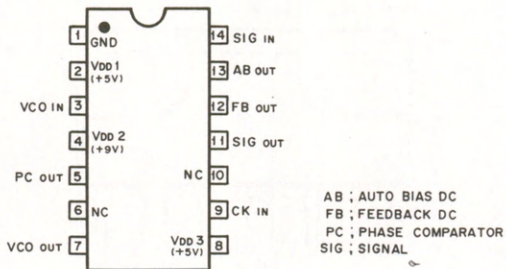
CXA1020P (SONY)
CHROMA CROSS-COLOR NOISE REDUCER/EDGE COMPENSATOR
— TOP VIEW —



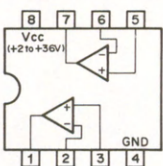
CXL5001P (SONY)
C-MOS CCD FOR NTSC 1H DELAY LINE
— TOP VIEW —



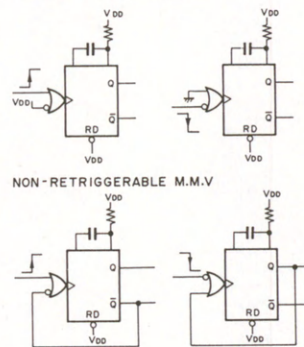
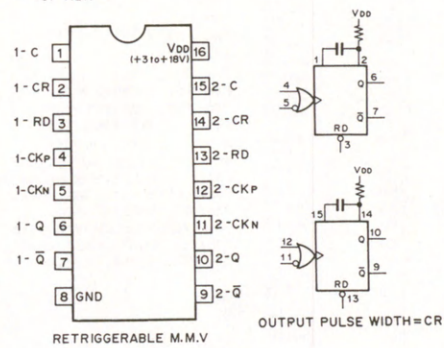
CXL5005P (SONY)
C-MOS CCD 1H DELAY LINE FOR NTSC
— TOP VIEW —



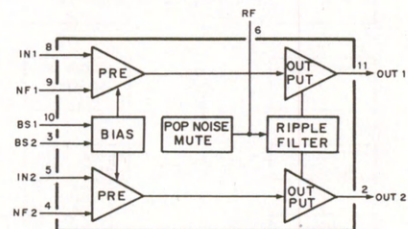
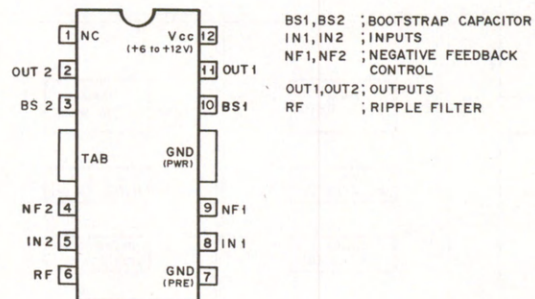
LM2903DQ (RAYTHEON)
VOLTAGE COMPARATOR
— TOP VIEW —



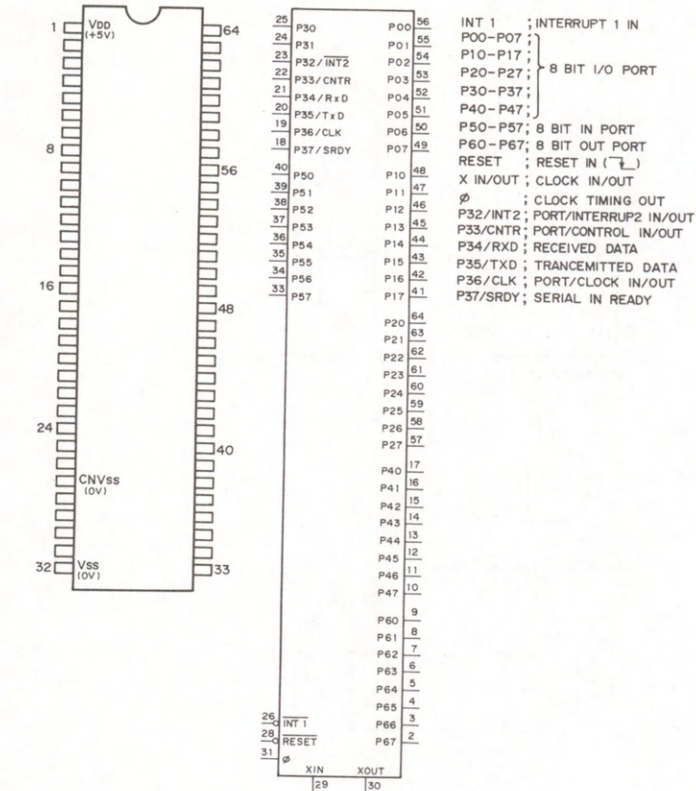
HD14538BP (HITACHI)
MC14538BCP (MOTOROLA)
TC4538BP
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



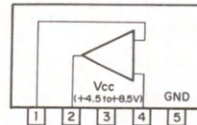
LA4550 (SANYO)
2CH AF POWER AMP
— TOP VIEW —



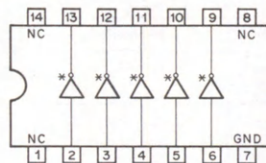
M50747H-XXXSP
C-MOS PROCESS 8-BIT ONE-CHIP MICROCOMPUTER
— TOP VIEW —



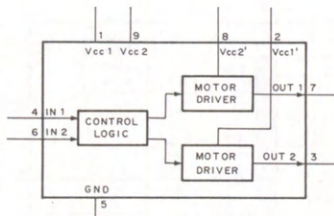
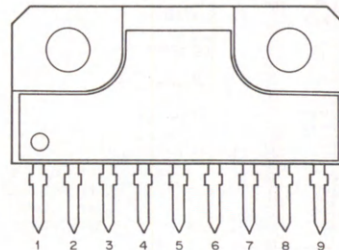
M5215L (MITSUBISHI)
FM IF AMPLIFIER
— REAR VIEW —



M54516P (MITSUBISHI)
INVERTER WITH OPEN-COLLECTOR
(DARLINGTON-CONNECTED TRANSISTOR ARRAY)
— TOP VIEW —

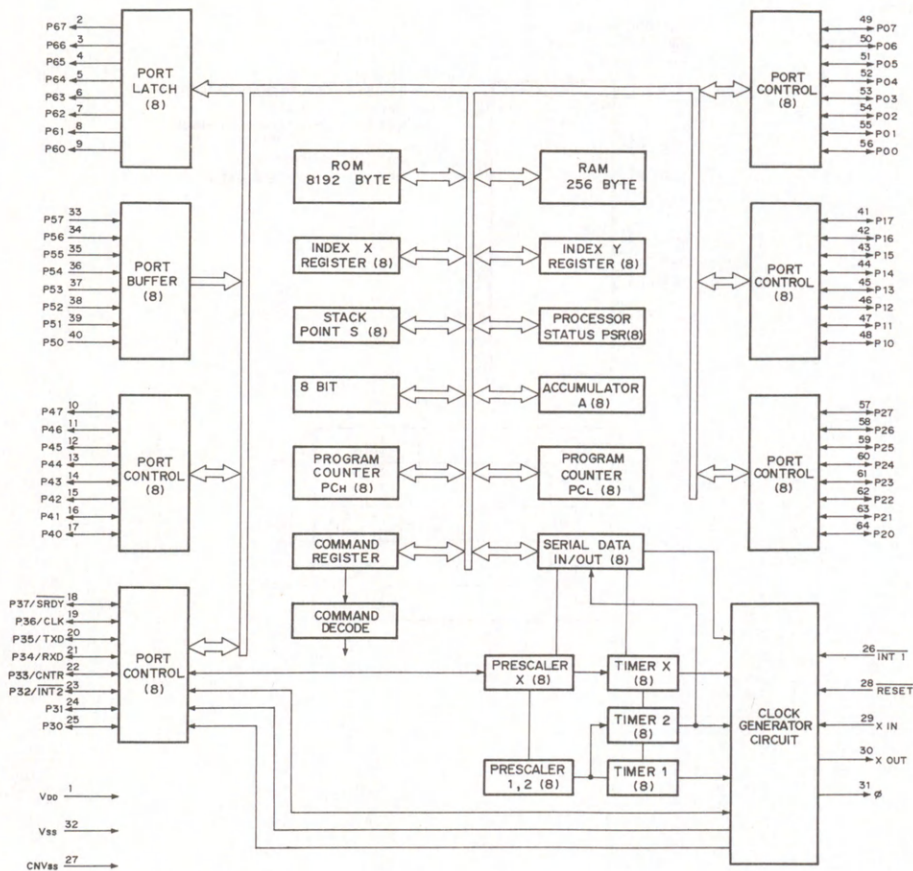


M54543L (MITSUBISHI)
BI-DIRECTIONAL MOTOR DRIVER
— SIDE VIEW —

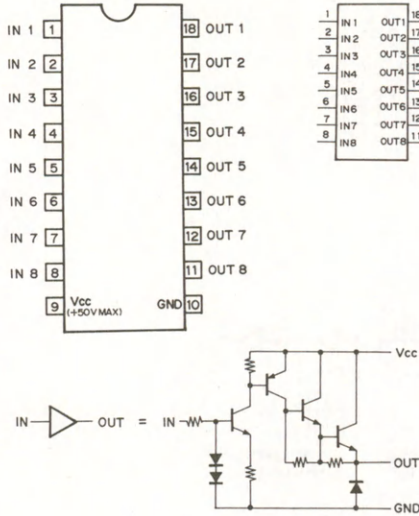


IN		OUT		MODE
1	2	1	2	
0	0	Z	Z	NO OPERATION
1	0	1	0	ROTATION
0	1	0	1	REVERSE ROTATION
1	1	0	0	BRAKE

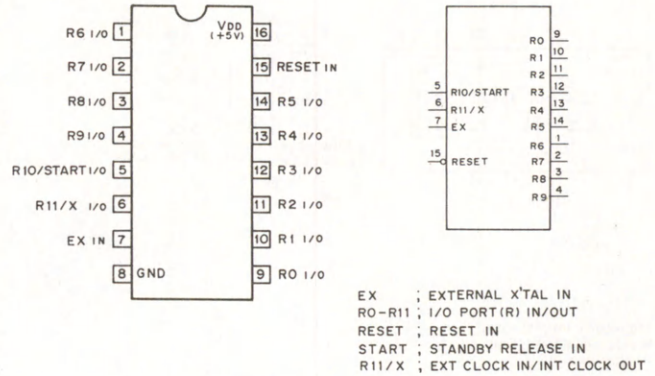
0: LOW LEVEL
1: HIGH LEVEL
Z: HIGH IMPEDANCE



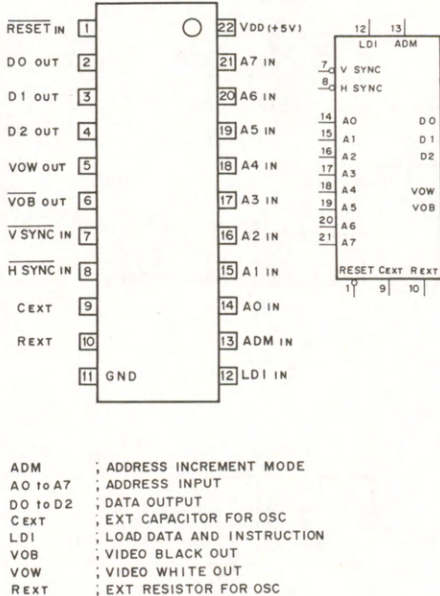
M54562P (MITSUBISHI)
SOURCE TYPE DARLINGTON TRANSISTOR ARRAY
— TOP VIEW —



MB88201H (FUJITSU)
C-MOS 4 BIT MICROCOMPUTER
— TOP VIEW —

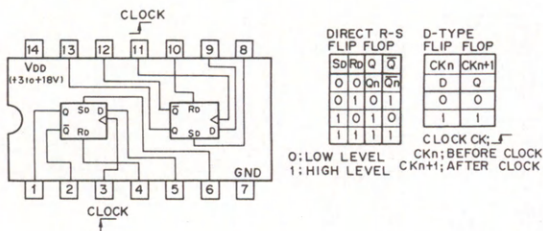


MB88303 (FUJITSU)
N-MOS PROGRAMMABLE TV DISPLAY CONTROLLER
— TOP VIEW —

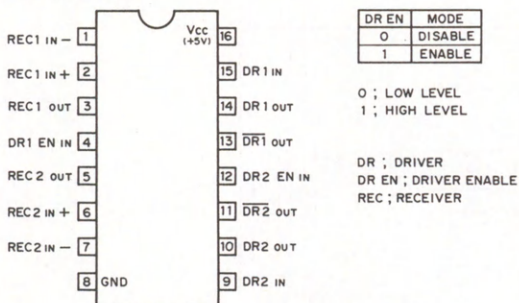


b3-b0	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
b5-b4	00	A	B	C	D	E	F	G	H	I	J	K	L	M	.	BLANK
01	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	:	█	(
10	0	1	2	3	4	5	6	7	8	9	?	!	'	.	BACK	)
11	↑	↓	←	→	+	-	*	/	=	&						

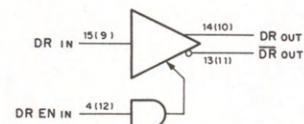
MC14013BCP (MOTOROLA)
C-MOS D-TYPE FLIP-FLOP WITH DIRECT SET/RESET
— TOP VIEW —



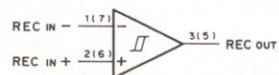
MC34051P (MOTOROLA)
RS-422 DRIVER/RECEIVER
— TOP VIEW —



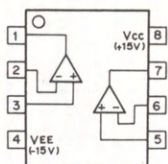
DRIVER CIRCUIT



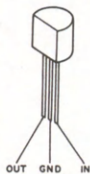
RECEIVER CIRCUIT



RC2043DD (RAYTHEON)
OPERATIONAL AMPLIFIER
— TOP VIEW —



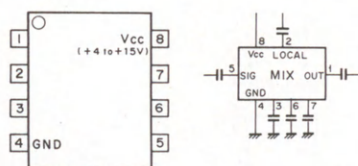
RC78L ? ?A (RAYTHEON)
POSITIVE VOLTAGE REGULATOR (100mA)



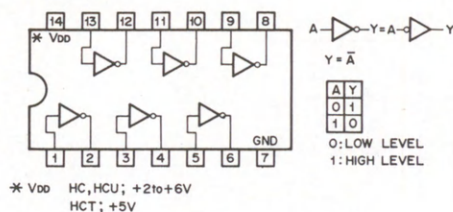
OUTPUT VOLTAGE RC78L??A

OUTPUT VOLTAGE	RC78L??A
+2.6V	RC78L02A
+4V	RC78L04A
+5V	RC78L05A
+6V	RC78L06A
+6.2V	RC78L06A
+7V	RC78L07A
+8V	RC78L08A
+8.2V	RC78L08A
+9V	RC78L09A
+10V	RC78L10A
+12V	RC78L12A
+15V	RC78L15A
+18V	RC78L18A
+20V	RC78L20A
+24V	RC78L24A

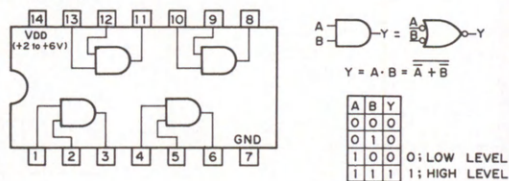
SN16913P (TI)
BALANCED MIXER
— TOP VIEW —



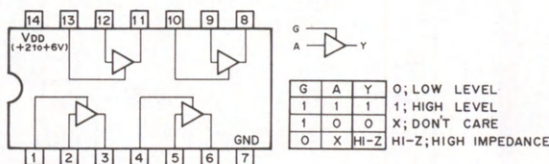
SN74HC04N (TI)
C-MOS INVERTER
— TOP VIEW —



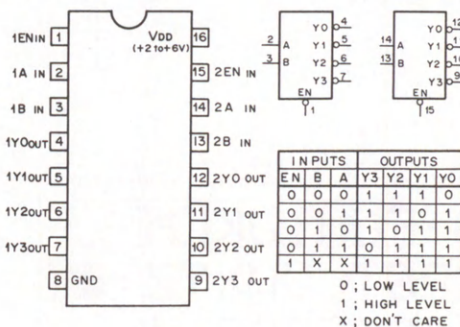
SN74HC08N (TI)
C-MOS 2-INPUT AND GATE
— TOP VIEW —



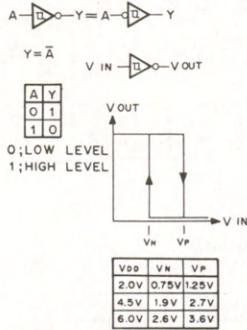
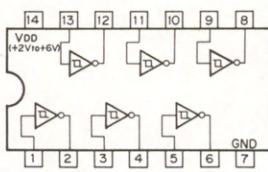
SN74HC126N (TI)
C-MOS BUS BUFFER GATE WITH 3-STATE OUTPUT
— TOP VIEW —



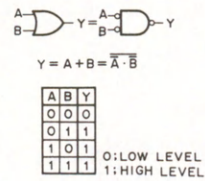
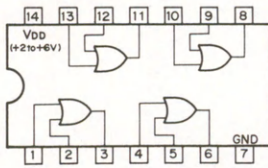
SN74HC139N (TI) (VDD = +2 to +6V)
C-MOS 1-OF-4 DECODER/DEMULPLEXER
— TOP VIEW —



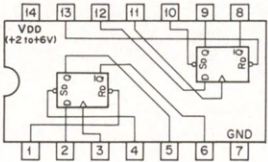
SN74HC14N (TI)
C-MOS SCHMITT TRIGGER INVERTER
— TOP VIEW —



SN74HC32N (TI)
C-MOS 2-INPUT OR GATE
— TOP VIEW —



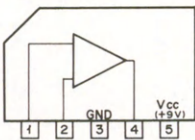
SN74HC74N (TI)
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
— TOP VIEW —



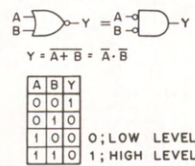
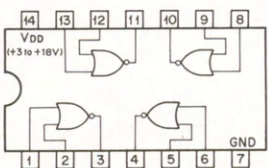
INPUTS				OUTPUTS	
SD	RE	CK	D	Qn+1	Qn
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1*	1*
1	1	1	1	1	0
1	1	1	0	0	1
1	1	0	X	Qn	Qn

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
1*; NONSTABLE

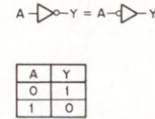
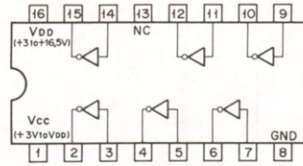
TA7060AP (TOSHIBA)
LINEAR AMP
— SIDE VIEW —



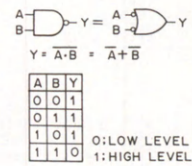
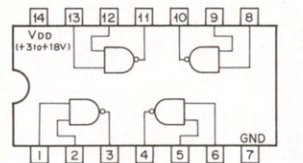
TC4001UBP (TOSHIBA)
C-MOS 2-INPUT NOR GATE
— TOP VIEW —



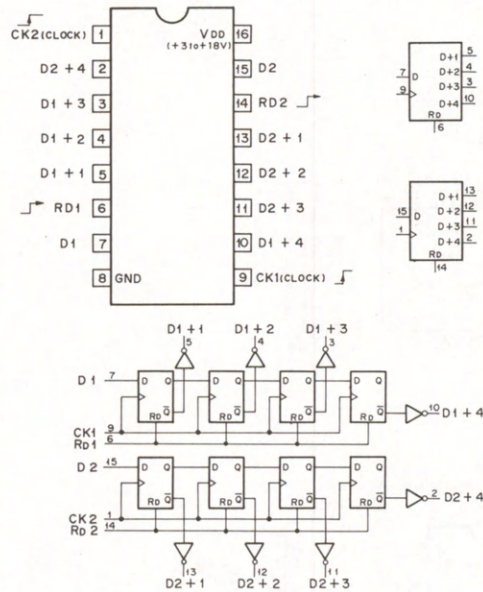
TC4009UBP (TOSHIBA)
C-MOS INVERTING TYPE BUFFER/CONVERTER (TO TTL LEVEL)
— TOP VIEW —



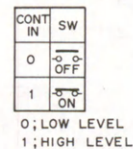
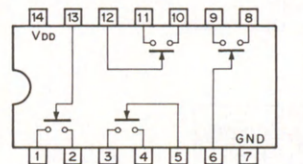
TC4011BP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —



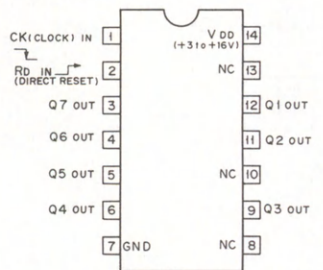
TC4015BP (TOSHIBA)
C-MOS DUAL 4-STAGE STATIC SHIFT REGISTER WITH DIRECT RESET
— TOP VIEW —



TC4016BPHB (TOSHIBA)
C-MOS BILATERAL SWITCH
— TOP VIEW —

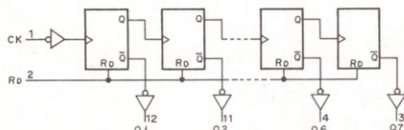


TC4024BP (TOSHIBA)
C-MOS ASYNCHRONOUS 7-BIT BINARY COUNTER
— TOP VIEW —

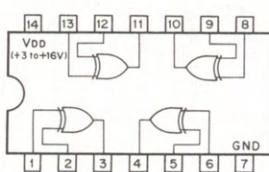


COUNT	INPUTS	OUTPUTS
	CK RD	Q7 Q6 Q5 Q4 Q3 Q2 Q1
0	X 1	0 0 0 0 0 0 0
1	1 0	0 0 0 0 0 0 1
2	1 0	0 0 0 0 0 1 0
3	1 0	0 0 0 0 0 1 1
4	1 0	0 0 0 0 1 0 0
125	1 0	1 1 1 1 1 0 1
126	1 0	1 1 1 1 1 1 0
127	1 0	1 1 1 1 1 1 1
—	0 0	NO CHANGE
—	1 0	

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE



TC4030BPHB (TOSHIBA)
C-MOS EXCLUSIVE OR GATE
— TOP VIEW —

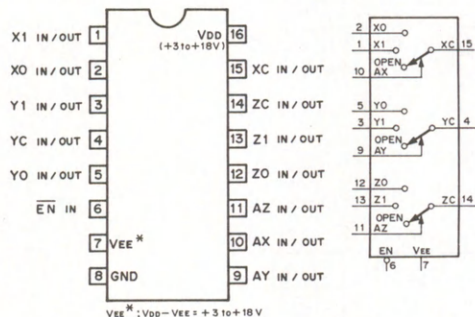


$$Y = A \oplus B = A \cdot \bar{B} + \bar{A} \cdot B$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0: LOW LEVEL
1: HIGH LEVEL

TC4053BP (TOSHIBA)
TC4053BPHB (TOSHIBA)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —

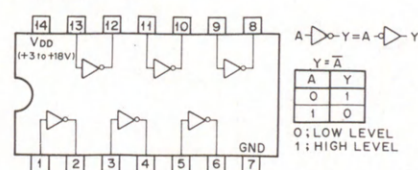


VEE*: VDD - VEE = +3 to +18V

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE.

CONT. INPUTS	ON
EN A (X,Y,Z) CHANNEL	
0	0
0	1
1	X
	OPEN

TC4069UBP (TOSHIBA)
C-MOS INVERTER
— TOP VIEW —

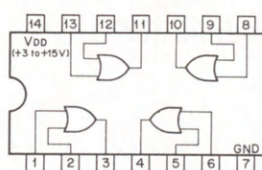


$$Y = \bar{A}$$

A	Y
0	1
1	0

0: LOW LEVEL
1: HIGH LEVEL

TC4071BP (TOSHIBA)
C-MOS 2-INPUT OR GATE
— TOP VIEW —

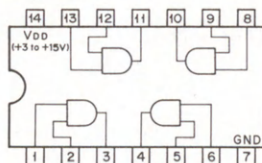


$$Y = A + B = \bar{A} \cdot \bar{B}$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

TC4081BP (TOSHIBA)
C-MOS 2-INPUT AND GATE
— TOP VIEW —

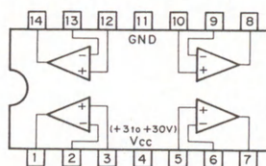


$$Y = A \cdot B = \bar{A} + \bar{B}$$

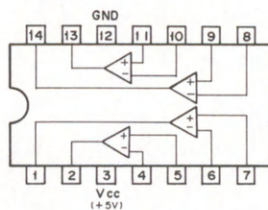
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

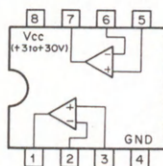
uPC324C (NEC)
QUAD. OP. AMPLIFIER
— TOP VIEW —



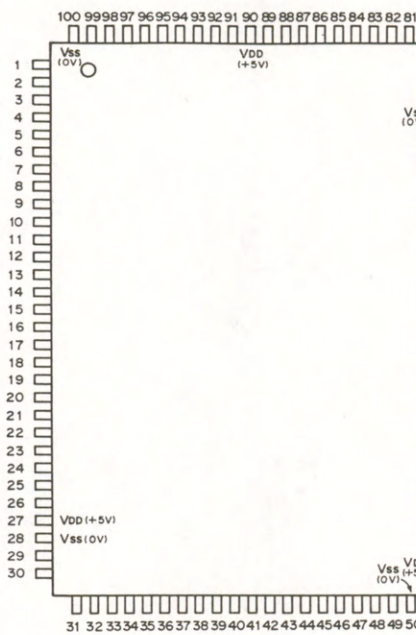
uPC339C (NEC)
COMPARATOR
— TOP VIEW —



uPC358C (NEC)
DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —

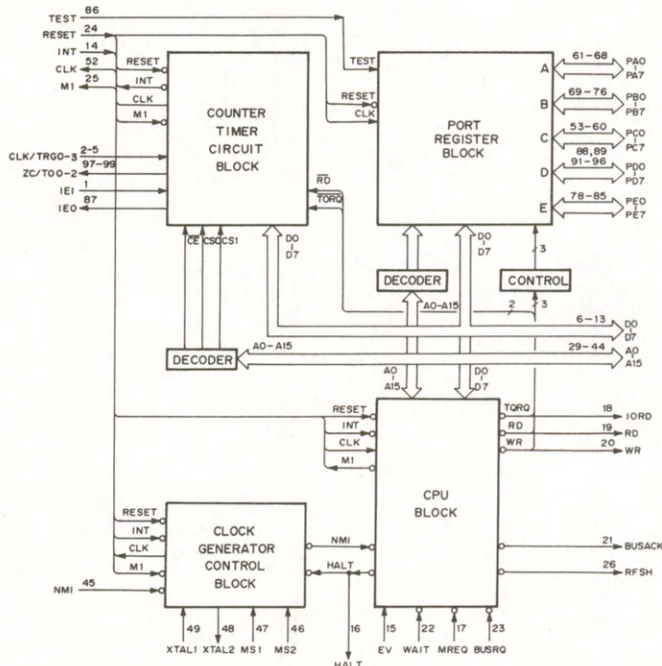


TMPZ84C011AF (TOSHIBA)
C-MOS 8 BIT MICROPROCESSOR
— TOP VIEW —

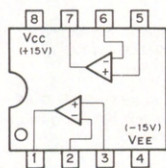


NO.	IN	OUT	SYMBOL	NO.	IN	OUT	SYMBOL
1			IE1	51			Vcc
2			CLK/TRG3	52			CLK
3			CLK/TRG2	53			PC7
4			CLK/TRG1	54			PC6
5			CLK/TRG0	55			PC5
6			D7	56			PC4
7			D6	57			PC3
8			D5	58			PC2
9			D4	59			PC1
10			D3	60			PC0
11			D2	61			PA7
12			D1	62			PA6
13			D0	63			PA5
14			INT	64			PA4
15			EV	65			PA3
16			HALT	66			PA2
17			MREQ	67			PA1
18			IORQ	68			PA0
19			RD	69			PB7
20			WR	70			PB6
21			BUSACK	71			PB5
22			WAIT	72			PB4
23			BUSREQ	73			PB3
24			RESET	74			PB2
25			MT	75			PB1
26			RFSH	76			PB0
27			Vcc	77			Vss
28			Vss	78			PE7
29			A0	79			PE6
30			A1	80			PE5
31			A2	81			PE4
32			A3	82			PE3
33			A4	83			PE2
34			A5	84			PE1
35			A6	85			PE0
36			A7	86			TEST
37			A8	87			IE0
38			A9	88			PD7
39			A10	89			PD6
40			A11	90			Vcc
41			A12	91			PD5
42			A13	92			PD4
43			A14	93			PD3
44			A15	94			PD2
45			NMI	95			PD1
46			MS2	96			PD0
47			MS1	97			ZC/T02
48			XTAL2	98			ZC/T01
49			XTAL1	99			ZC/T00
50			Vss	100			Vss

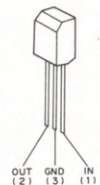
68	PA0	A0	29	A0-A15; 3-STATE ADDRESS BUS OUTPUTS
67	PA1	A1	30	BUSACK; BUS ACKNOWLEDGE OUTPUT
66	PA2	A2	31	BUS REQ; BUS REQUEST INPUT
65	PA3	A3	32	CLK; CLOCK OUTPUT
64	PA4	A4	33	CLK/TRG0-3; EXTERNAL CLOCK / TIMER TRIGGER0-3 INPUTS
63	PA5	A5	34	D0-D7; 3-STATE DATA BUS INPUTS/OUTPUTS
62	PA6	A6	35	EV; EVALUATOR INPUT
61	PA7	A7	36	HALT; HALT OUTPUT
76	PB0	A8	37	IE1/IE0; CTC INTERRUPT ENABLE INPUT/OUTPUT
75	PB1	A9	38	INT; MASKABLE INTERRUPT REQUEST INPUT
74	PB2	A10	39	IORQ; 3-STATE I/O REQUEST OUTPUT
73	PB3	A11	40	M1; 3-STATE MACHINE CYCLE 1 OUTPUT
72	PB4	A12	41	MREQ; 3-STATE REQUEST OUTPUT
71	PB5	A13	42	MS1/MS2; MODE SELECT 1/2 INPUTS
70	PB6	A14	43	NMI; NON-MASKABLE INTERRUPT REQUEST INPUT
69	PB7	A15	44	PA0-PA7; 3-STATE I/O PORT
60	PC0	D0	13	PB0-PB7; 3-STATE I/O PORT
59	PC1	D1	12	PC0-PC7; 3-STATE I/O PORT
58	PC2	D2	11	PD0-PD7; 3-STATE I/O PORT
57	PC3	D3	10	RD; 3-STATE READ OUTPUT
56	PC4	D4	9	RESET; RESET INPUT
55	PC5	D5	8	RFSH; REFRESH OUTPUT
54	PC6	D6	7	TEST; TEST INPUT
53	PC7	D7	6	WAIT; WAIT REQUEST INPUT
96	PD0	CLK	52	WR; 3-STATE WRITE OUTPUT
95	PD1			ZC/T00-2; ZERO COUNT/TIME OUT 0-2 OUTPUTS
94	PD2			
93	PD3	IORQ	18	
92	PD4	RD	19	
91	PD5	WR	20	
89	PD6	BUSACK	21	
88	PD7	RFSH	26	
85	PE0	HALT	15	
84	PE1	EV	17	
83	PE2	MREQ	22	
82	PE3	WAIT	23	
81	PE4	BUS REQ	24	
80	PE5	TEST	86	
79	PE6			
78	PE7			
3	CLK/TRG0	ZC/T00	99	
4	CLK/TRG1	ZC/T01	98	
5	CLK/TRG2	ZC/T02	97	
6	CLK/TRG3	RESET	24	
1	IE1	IE0	87	
14	INT			
45	NMI	M1	25	
47	MS2	XTAL1	48	
46	MS1	XTAL2	49	



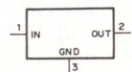
uPC4558C (NEC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



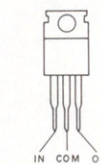
uPC78L??A (NEC)
POSITIVE VOLTAGE REGULATOR (100mA)



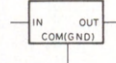
OUTPUT VOLTAGE	uPC78L??	uPC78L??A
5V	uPC78L05	uPC78L05A
6V		
8V	uPC78L08	
9V		
12V	uPC78L12	
15V	uPC78L15	



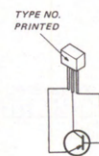
uPC78M??H (NEC)
POSITIVE VOLTAGE REGULATOR (0.5A)
— SIDE VIEW —



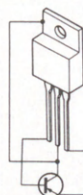
OUTPUT VOLTAGE	uPC78M??H
+5V	uPC78M05H
+6V	-----
+7V	-----
+8V	uPC78M08H
+12V	uPC78M12H
+15V	uPC78M15H
+18V	-----
+20V	-----
+24V	uPC78M24H



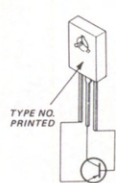
2SA1115



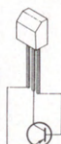
2SA1175
2SA1175F



2SA768
2SA771



2SB649A



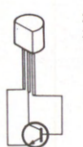
2SB733



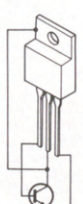
2SB822



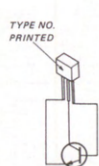
2SC1740S
2SC403SP



2SC1815
2SC2878

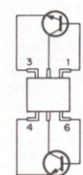


2SC1826

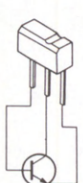


2SC2785
2SC2785F
2SC2785K

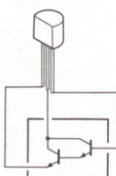
— TOP VIEW —



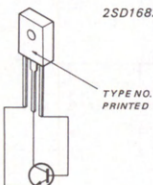
2SC3064



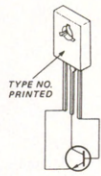
2SD1055



2SD1111



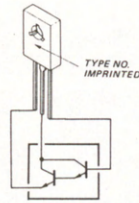
2SD1682



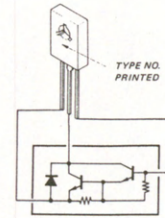
2SD669A



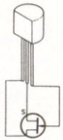
2SD773
2SD774



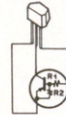
2SD894



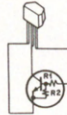
2SD998



2SK523



DTA124XS (R1=22K, R2=47K)
DTA143XS (R1=4.7K, R2=10K)
DTA144ES (R1=47K, R2=47K)



DTC124ES (R1=22K, R2=22K)
DTC124XS (R1=22K, R2=47K)
DTC143TS (R1=4.7K, R2= OPEN)
DTC144ES (R1=47K, R2=47K)



SPS102



10E-2
1S1555S
1SS119
1SS133



1SS97
1SS97-1
1SS99



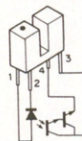
BR5104S ; RED



FC54M

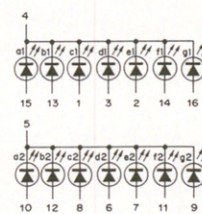
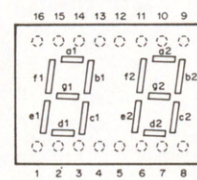


GL-5HD5 ; RED

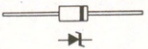


GP-1L52
GP-1L53

DUAL 7-SEGMENT LED
— TOP VIEW —



LB402VK (ROHM)



RD 7 EB 7
RD 7 ESB 7



TLUG154 ; GREEN



U05E

SECTION 15
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

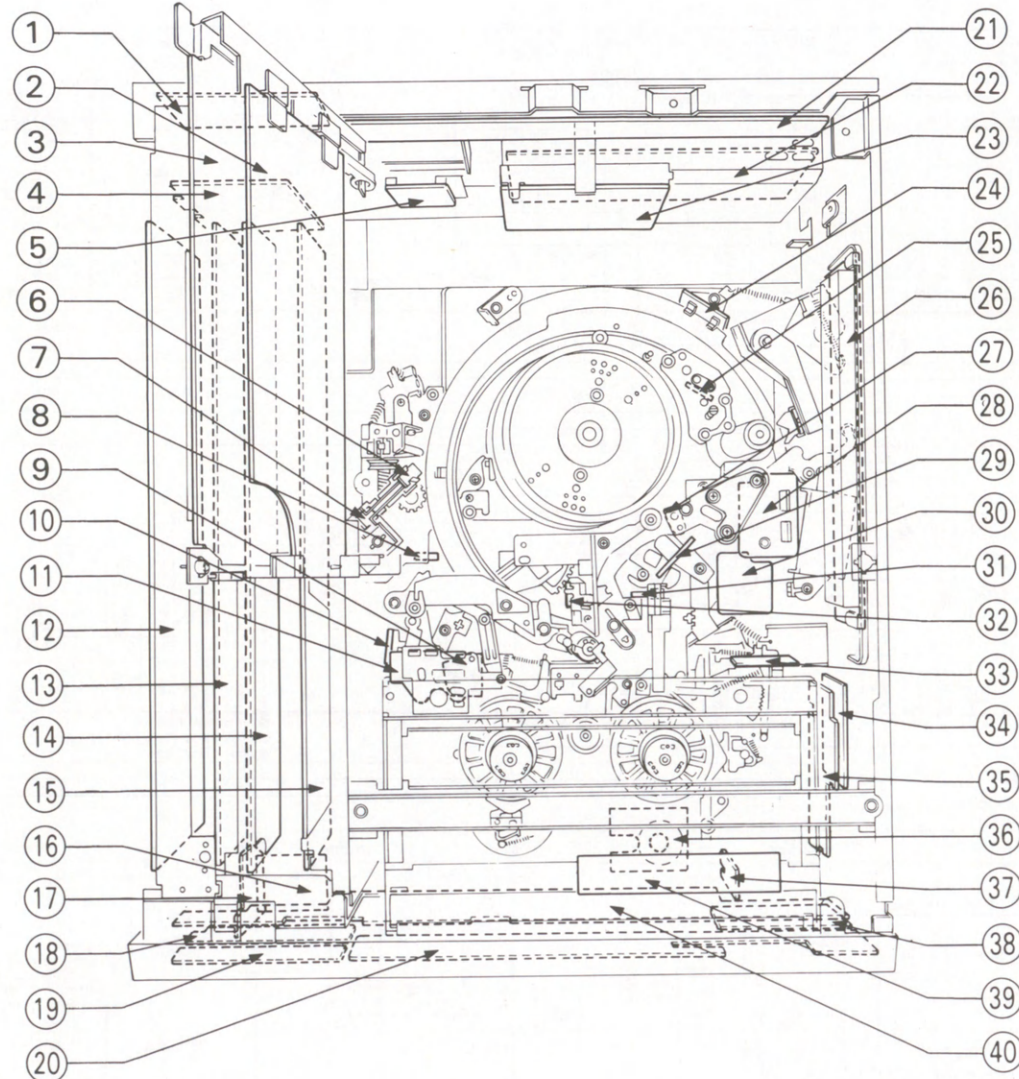
CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARD

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-69	Y Demodulator, SP Detector, Character Mixer
	DM-70	C PB Processor
	DUS-271	Connector
	MD-59	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40	REC/PB Amplifier, Rotary Erase Driver
	VR-80	Level AUTO/MAN
AUDIO	AA-16	Connector
	AU-124	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31	Dolby NR, NR Pilot REC/Detector, Select Switch
	SW-315	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112	Drum/Capstan Servo
	SY-141	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT. IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31	REC/PB Amplifier
POWER	AC-94	Line Filter
	DC-31D	DC Supply
	UR-01	Switching Regulator

LOCATION

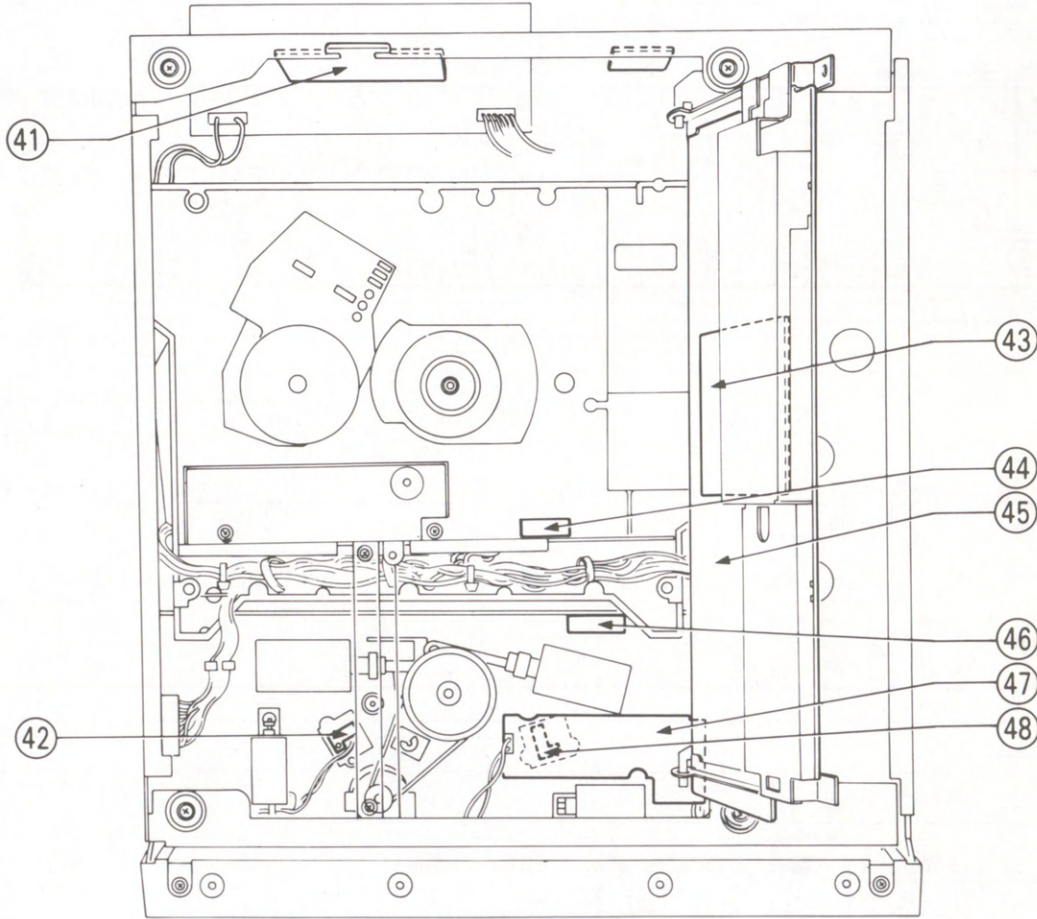
[TOP VIEW]



- | | | |
|-----------------|--------------------------------|------------------|
| 1 CP-136 Board | 14 SV-112 Board | 27 HN-84 Board |
| 2 DM-70 Board | 15 MD-59 Board | 28 DUS-147 Board |
| 3 DM-69 Board | 16 MC-28 Board | 29 EC-32 Board |
| 4 AA-16 Board | 17 HP-42 Board | 30 HN-130 Board |
| 5 RM-66 Board | 18 VR-80 Board | 31 PH-5 Board |
| 6 PH-5 Board | 19 MT-53 Board | 32 PH-5 Board |
| 7 PH-5 Board | 20 SW-315 Board | 33 CC-37 Board |
| 8 LM-13 Board | 21 DUS-271 Board | 34 PD-40 Board |
| 9 SE-46 Board | 22 Switching Regulator (UR-01) | 35 CC-36 Board |
| 10 PTC-34 Board | 23 DC-31D Board | 36 RM-39 Board |
| 11 PTC-30 Board | 24 PTC-33 Board | 37 PTC-32 Board |
| 12 AU-124 Board | 25 DUS-92 Board | 38 DP-62 Board |
| 13 NR-31 Board | 26 RP-40 Board | 39 LP-41 Board |
| | | 40 KY-159 Board |

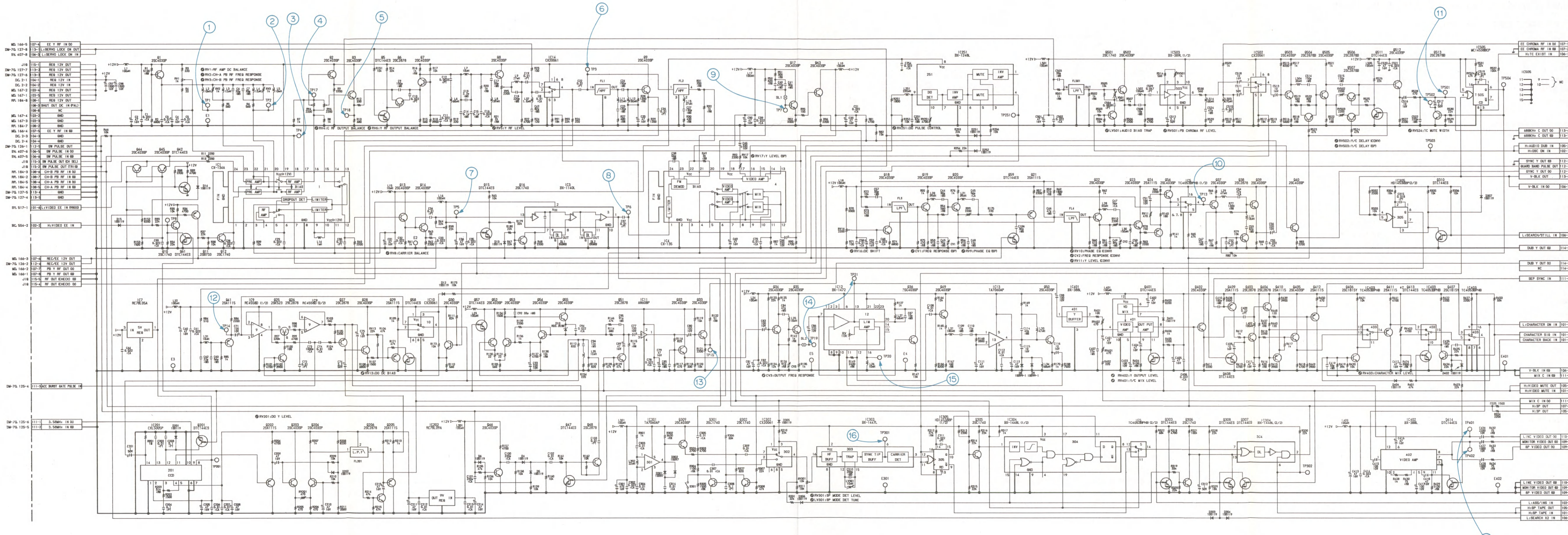
LOCATION

[BOTTOM VIEW]



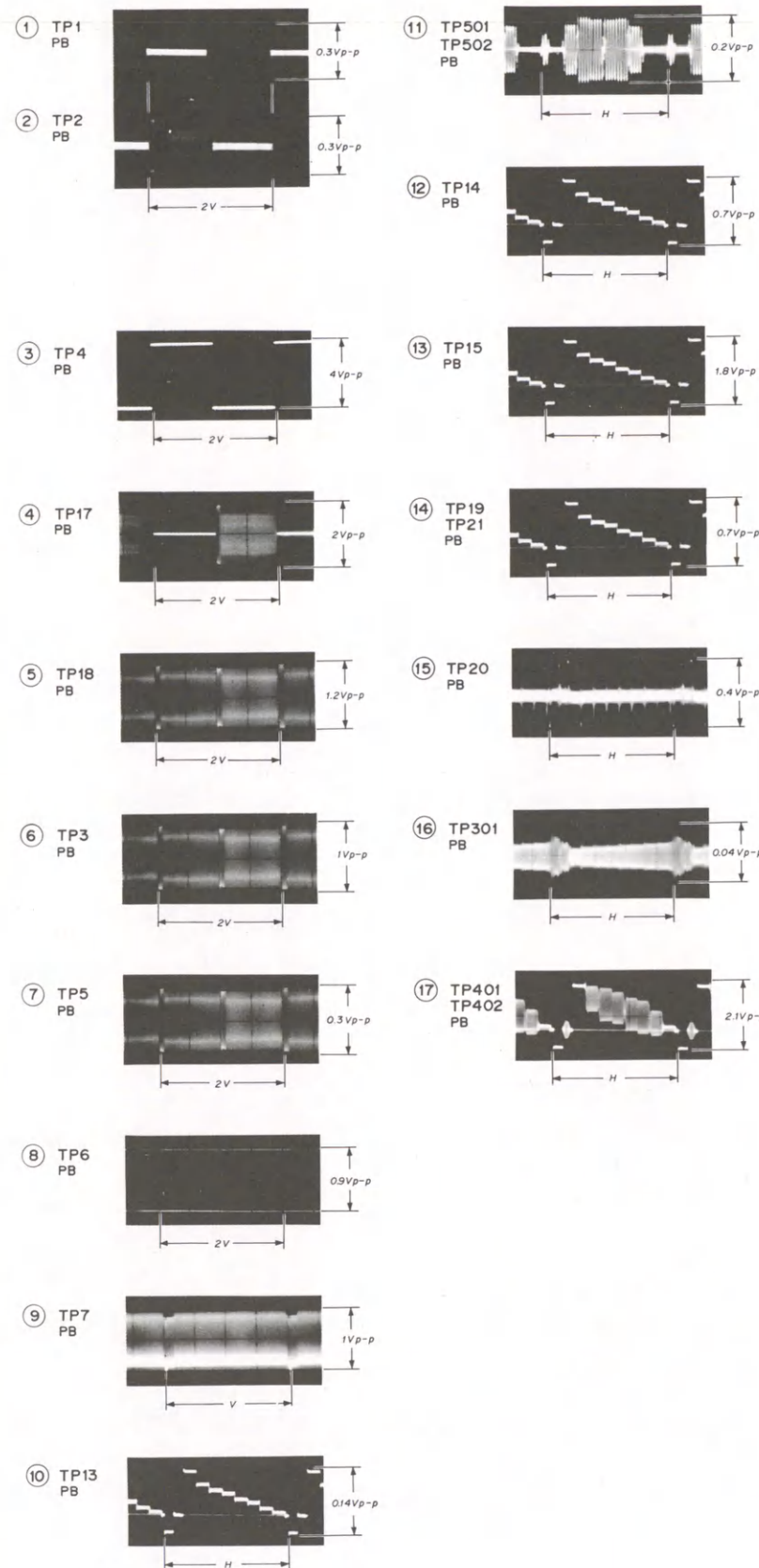
- | |
|-----------------|
| 41 AC-94 Board |
| 42 PTC-35 Board |
| 43 BC-16 Board |
| 44 PT-9 Board |
| 45 SY-141 Board |
| 46 TG-22 Board |
| 47 PD-41 Board |
| 48 PTC-35 Board |

DM-69

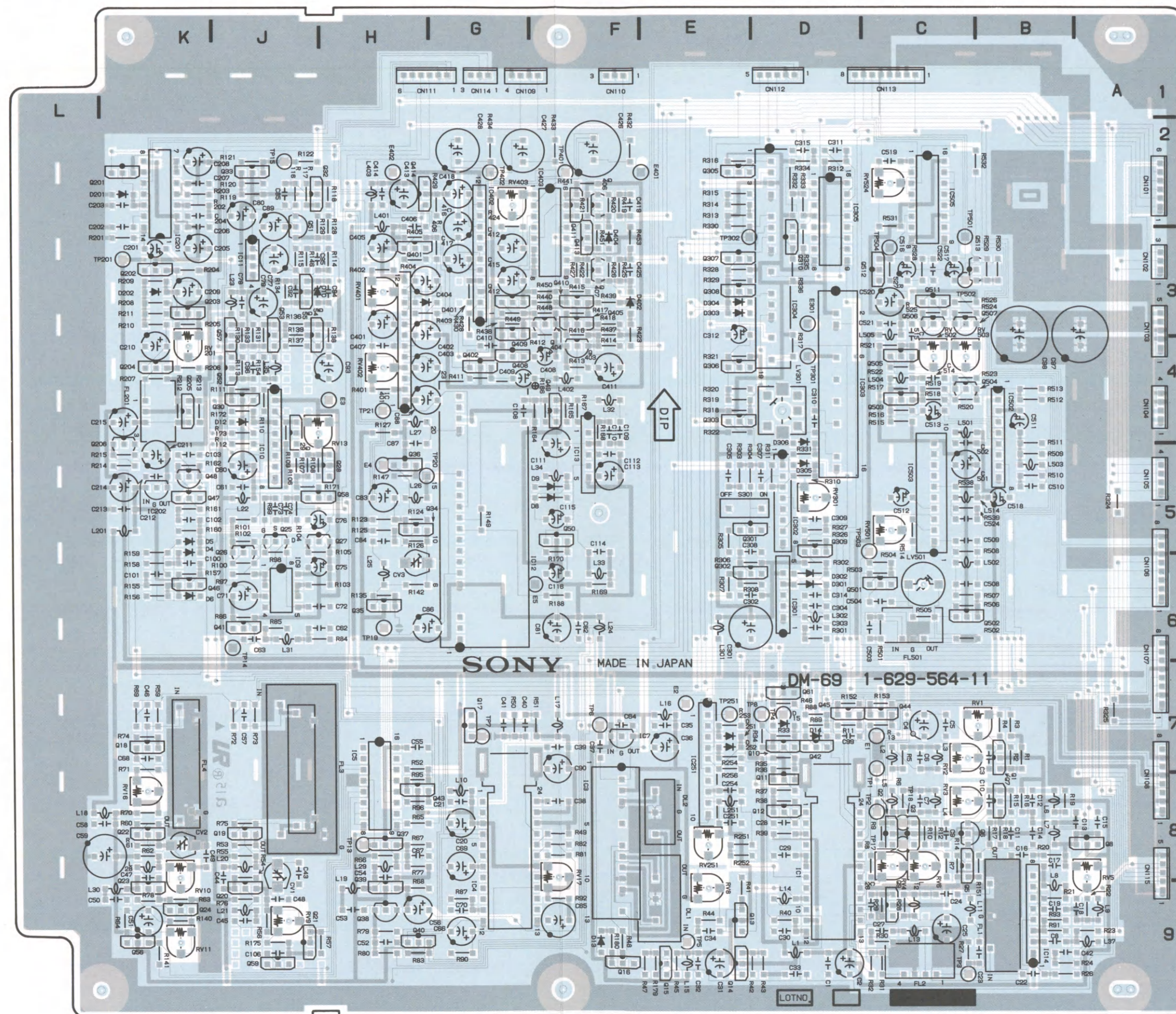


DM-69: Y DEMODULATOR, SP DETECT, CHARACTER MIX

DM-69 (1-629-564-11) C



CN101	A-2	IC3	F-8	L201	L-5	Q53	J-3	RV402	H-4
CN102	A-3	IC4	G-9	L251	E-8	Q54	J-3	RV403	G-2
CN103	A-3	IC5	H-7	L301	E-6	Q55	J-3	RV501	C-5
CN104	A-4	IC7	E-7	L302	D-6	Q56	K-9	RV502	C-4
CN105	A-5	IC9	J-6	L401	H-2	Q57	J-4	RV503	B-4
CN106	A-6	IC10	J-5	L402	F-4	Q58	H-5	RV524	C-2
CN107	A-6	IC11	J-3	L403	H-2	Q59	J-9		
CN108	A-8	IC12	F-6	L501	C-4	Q61	D-7	S301	E-5
CN109	G-1	IC13	F-5	L502	B-6	Q201	L-2	TP1	C-8
CN110	F-1	IC14	B-9	L503	B-5	Q202	K-3	TP2	C-8
CN111	G-1	IC201	K-3	L504	C-4	Q203	J-3	TP3	C-9
CN112	D-1	IC202	K-5	L505	C-4	Q204	K-4	TP4	D-7
CN113	C-1	IC251	E-7	L514	B-5	Q205	K-4	TP5	E-9
CN114	G-1	IC301	D-6			Q206	L-5	TP6	F-7
CN115	A-8	IC302	D-5	Q1	B-8	Q301	D-5	TP7	G-7
CV1	J-9	IC303	C-4	Q2	C-8	Q302	E-6	TP8	D-7
CV2	K-8	IC304	D-3	Q3	C-8	Q303	E-4	TP13	H-8
CV3	H-6	IC305	D-2	Q5	C-9	Q305	E-2	TP14	J-7
		IC401	H-4	Q6	B-8	Q306	E-4	TP15	J-2
		IC402	G-2	Q7	B-8	Q307	E-3	TP17	C-8
DL1	E-9	IC403	F-2	Q8	A-8	Q308	E-3	TP18	C-8
DL2	E-8	IC502	B-4	Q9	C-9	Q309	D-5	TP19	H-6
		IC503	C-5	Q10	D-7	Q310	D-3	TP20	G-5
		IC505	C-2	Q11	D-8	Q401	H-3	TP21	H-4
D4	K-6			Q12	D-8	Q402	G-4	TP201	L-3
D5	K-5			Q13	D-9	Q403	F-4	TP251	E-7
D6	K-6	LV301	D-4	Q14	E-9	Q404	F-4	TP301	D-4
D8	F-5	LV501	C-6	Q15	E-9	Q405	F-3	TP302	E-3
D9	F-5			Q16	F-9	Q406	F-2	TP401	F-2
D10	J-3	L1	D-9	Q17	G-7	Q407	F-3	TP402	G-2
D12	J-4	L2	C-7	Q18	K-7	Q408	G-4	TP501	C-2
D13	F-9	L3	C-7	Q19	J-8	Q409	G-4	TP502	C-3
D14	D-7	L4	C-8	Q20	J-9	Q410	F-3	TP503	C-5
D15	D-7	L5	C-8	Q21	H-9	Q411	F-3	TP504	C-3
D201	L-2	L6	B-8	Q22	K-8	Q412	G-3		
D202	K-3	L7	B-8	Q23	K-8	Q413	F-3		
D251	D-7	L8	B-8	Q24	J-9	Q414	H-2		
D252	D-7	L9	A-9	Q25	J-5	Q501	D-6		
D301	D-6	L10	G-8	Q26	J-6	Q502	B-6		
D302	D-6	L11	B-9	Q27	H-5	Q503	C-4		
D303	E-3	L12	C-9	Q28	H-5	Q504	B-4		
D304	E-3	L13	C-9	Q29	J-5	Q505	C-4		
D305	D-5	L14	D-9	Q30	J-4	Q506	C-3		
D306	D-5	L15	E-9	Q32	H-2	Q507	B-3		
D401	G-3	L16	E-7	Q33	J-2	Q511	C-3		
D402	F-3	L17	F-7	Q34	G-5	Q512	C-3		
D404	F-3	L18	L-8	Q35	H-6	Q513	B-3		
		L19	H-8	Q36	H-5	RV1	B-7		
E1	C-7	L20	J-8	Q37	H-8	RV2	C-7		
E2	E-7	L21	J-9	Q38	H-9	RV3	C-8		
E3	H-4	L22	J-5	Q39	H-8	RV4	A-8		
E4	H-5	L23	J-3	Q40	H-9	RV5	A-8		
E5	F-6	L24	F-6	Q41	J-6	RV6	C-8		
E301	D-3	L25	H-6	Q42	D-7	RV8	E-9		
E401	E-2	L26	H-5	Q43	G-8	RV9	J-9		
E402	H-2	L27	H-4	Q44	C-7	RV10	K-9		
		L28	K-8	Q45	D-7	RV11	K-9		
FL1	B-9	L29	H-8	Q46	K-6	RV13	H-5		
FL2	C-9	L30	L-9	Q47	K-7	RV16	K-8		
FL3	J-7	L31	J-6	Q48	K-5	RV17	F-8		
FL4	K-7	L32	F-4	Q49	F-4	RV201	K-4		
FL201	K-4	L33	F-6	Q50	F-5	RV251	E-8		
FL501	C-6	L34	F-5	Q51	J-3	RV301	D-5		
		L35	J-4	Q52	J-4	RV401	H-3		
IC1	D-8	L37	A-9						



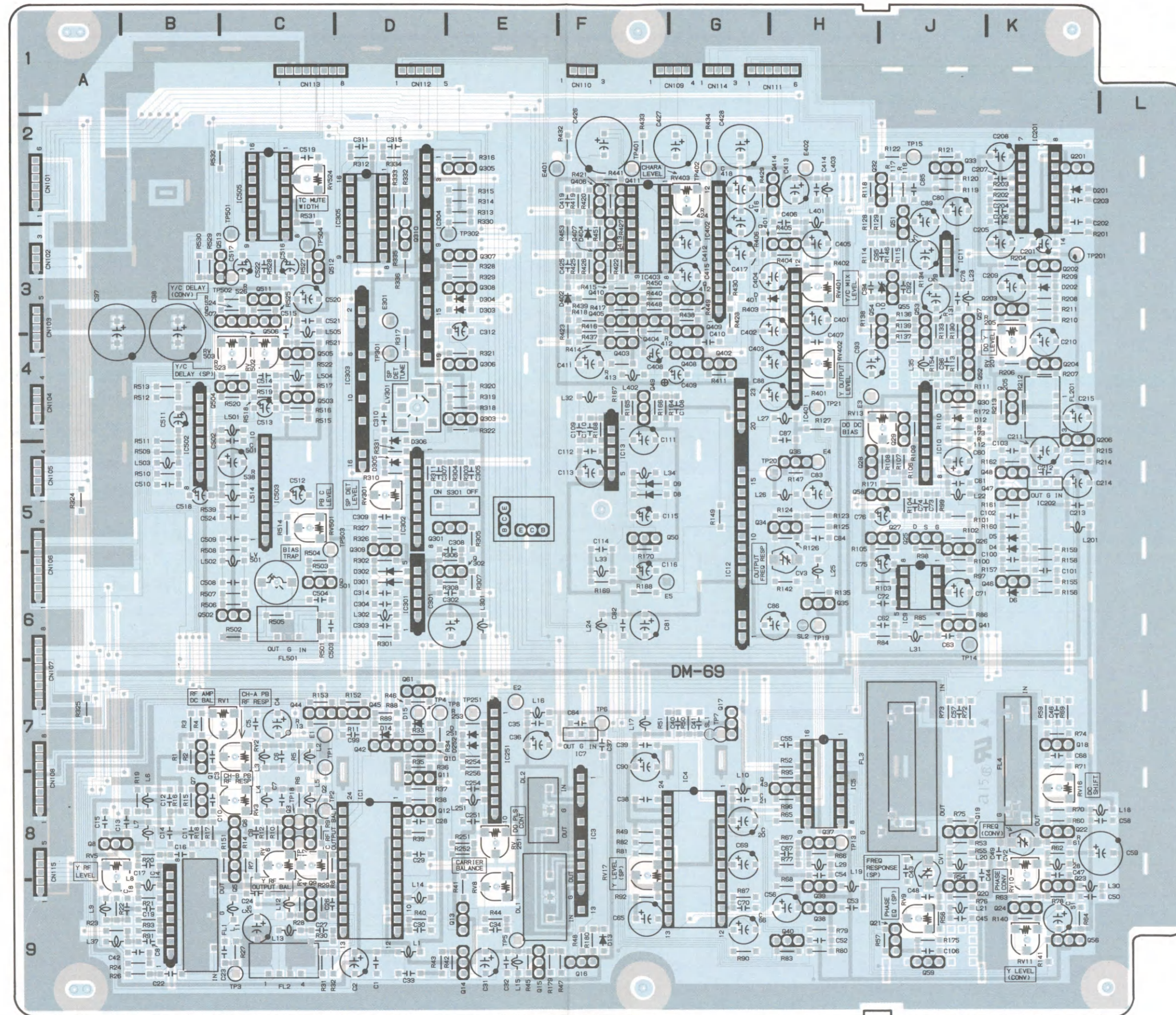
DM-69

—COMPONENT SIDE—
1-629-564-11
VO-9850
VO-9800

DM-69: Y DEMODULATOR, SP DETECT, CHARACTER MIX

DM-69 (1-629-564-11) S

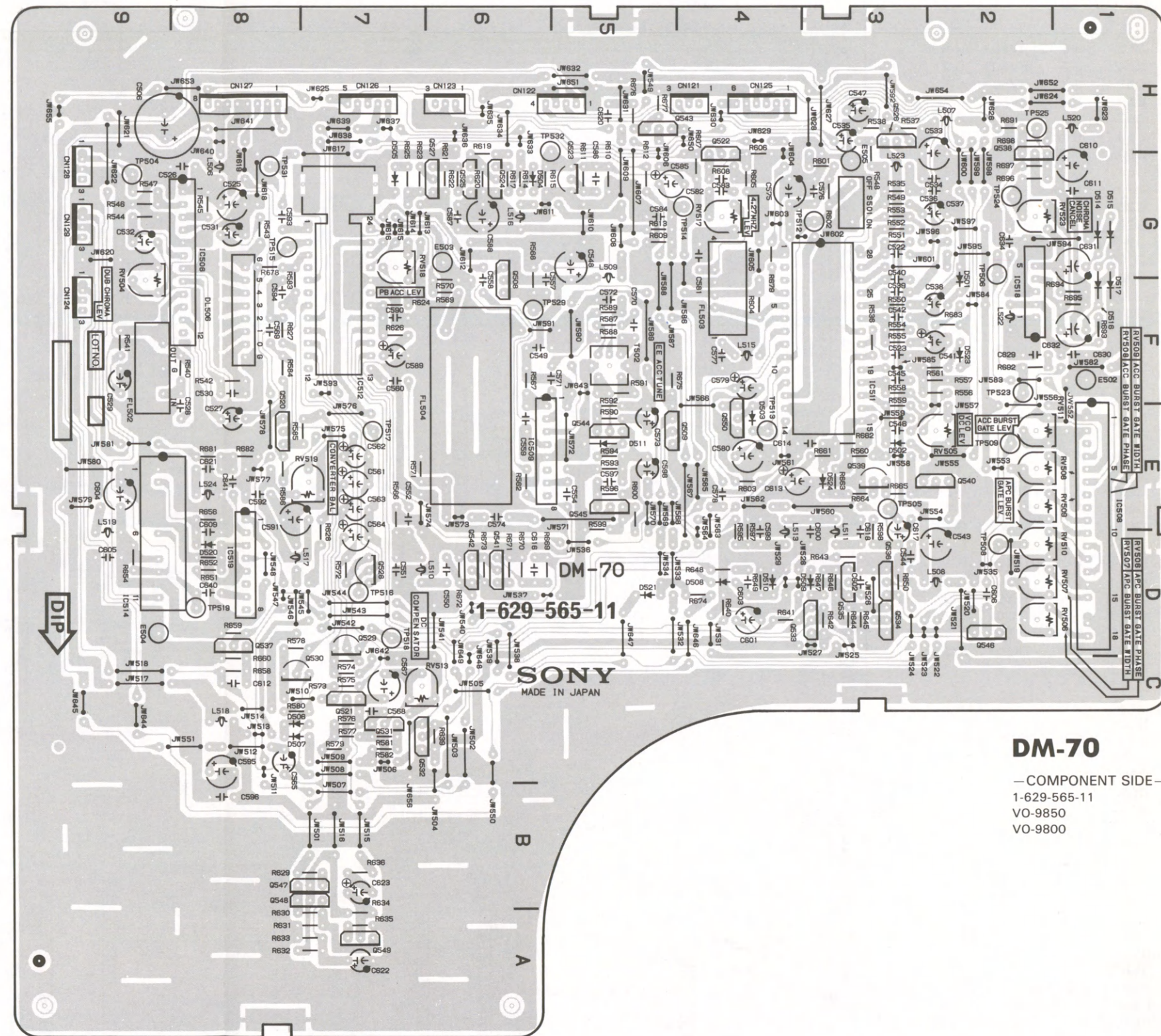
CN101	A-2	IC3	F-8	L201	L-5	Q53	J-3	RV402	H-4
CN102	A-3	IC4	G-9	L251	E-8	Q54	J-3	RV403	G-2
CN103	A-3	IC5	H-7	L301	E-6	Q55	J-3	RV501	C-5
CN104	A-4	IC7	E-7	L302	D-6	Q56	K-9	RV502	C-4
CN105	A-5	IC9	J-6	L401	H-2	Q57	J-4	RV503	B-4
CN106	A-6	IC10	J-5	L402	F-4	Q58	H-5	RV524	C-2
CN107	A-6	IC11	J-3	L403	H-2	Q59	J-9		
CN108	A-8	IC12	F-6	L501	C-4	Q61	D-7	S301	E-5
CN109	G-1	IC13	F-5	L502	B-6	Q201	L-2		
CN110	F-1	IC14	B-9	L503	B-5	Q202	K-3	TP1	C-8
CN111	G-1	IC201	K-3	L504	C-4	Q203	J-3	TP2	C-8
CN112	D-1	IC202	K-5	L505	C-4	Q204	K-4	TP3	C-9
CN113	C-1	IC251	E-7	L514	B-5	Q205	K-4	TP4	D-7
CN114	G-1	IC301	D-6			Q206	L-5	TP5	E-9
CN115	A-8	IC302	D-5	Q1	B-8	Q301	D-5	TP6	F-7
		IC303	C-4	Q2	C-8	Q302	E-6	TP7	G-7
CV1	J-9	IC304	D-3	Q3	C-8	Q303	E-4	TP8	D-7
CV2	K-8	IC305	D-2	Q5	C-9	Q305	E-2	TP13	H-8
CV3	H-6	IC401	H-4	Q6	B-8	Q306	E-4	TP14	J-7
		IC402	G-2	Q7	B-8	Q307	E-3	TP15	J-2
DL1	E-9	IC403	F-2	Q8	A-8	Q308	E-3	TP17	C-8
DL2	E-8	IC502	B-4	Q9	C-9	Q309	D-5	TP18	C-8
		IC503	C-5	Q10	D-7	Q310	D-3	TP19	H-6
		IC505	C-2	Q11	D-8	Q401	H-3	TP20	G-5
D4	K-6			Q12	D-8	Q402	G-4	TP21	H-4
D5	K-5			Q13	D-9	Q403	F-4	TP201	L-3
D6	K-6	LV301	D-4	Q14	E-9	Q404	F-4	TP251	E-7
D8	F-5	LV501	C-6	Q15	E-9	Q405	F-3	TP301	D-4
D9	F-5			Q16	F-9	Q406	F-2	TP302	E-3
D10	J-3	L1	D-9	Q17	G-7	Q407	F-3	TP401	F-2
D12	J-4	L2	C-7	Q18	K-7	Q408	G-4	TP402	G-2
D13	F-9	L3	C-7	Q19	J-8	Q409	G-4	TP501	C-2
D14	D-7	L4	C-8	Q20	J-9	Q410	F-3	TP502	C-3
D15	D-7	L5	C-8	Q21	H-9	Q411	F-3	TP503	C-5
D201	L-2	L6	B-8	Q22	K-8	Q412	G-3	TP504	C-3
D202	K-3	L7	B-8	Q23	K-8	Q413	F-3		
D251	D-7	L8	B-8	Q24	J-9	Q414	H-2		
D252	D-7	L9	A-9	Q25	J-5	Q501	D-6		
D301	D-6	L10	G-8	Q26	J-6	Q502	B-6		
D302	D-6	L11	B-9	Q27	H-5	Q503	C-4		
D303	E-3	L12	C-9	Q28	H-5	Q504	B-4		
D304	E-3	L13	C-9	Q29	J-5	Q505	C-4		
D305	D-5	L14	D-9	Q30	J-4	Q506	C-3		
D306	D-5	L15	E-9	Q32	H-2	Q507	B-3		
D401	G-3	L16	E-7	Q33	J-2	Q511	C-3		
D402	F-3	L17	F-7	Q34	G-5	Q512	C-3		
D404	F-3	L18	L-8	Q35	H-6	Q513	B-3		
		L19	H-8	Q36	H-5	RV1	B-7		
E1	C-7	L20	J-8	Q37	H-8	RV2	C-7		
E2	E-7	L21	J-9	Q38	H-9	RV3	C-8		
E3	H-4	L22	J-5	Q39	H-8	RV4	C-8		
E4	H-5	L23	J-3	Q40	H-9	RV5	A-8		
E5	F-6	L24	F-6	Q41	J-6	RV6	C-8		
E301	D-3	L25	H-6	Q42	D-7	RV8	E-9		
E401	E-2	L26	H-5	Q43	G-8	RV9	J-9		
E402	H-2	L27	H-4	Q44	C-7	RV10	K-9		
		L28	K-8	Q45	D-7	RV11	K-9		
FL1	B-9	L29	H-8	Q46	K-6	RV13	H-5		
FL2	C-9	L30	L-9	Q47	K-7	RV16	K-8		
FL3	J-7	L31	J-6	Q48	K-5	RV17	F-8		
FL4	K-7	L32	F-4	Q49	F-4	RV201	K-4		
FL201	K-4	L33	F-6	Q50	F-5	RV251	E-8		
FL501	C-6	L34	F-5	Q51	J-3	RV301	D-5		
		L35	J-4	Q52	J-4	RV401	H-3		
IC1	D-8	L37	A-9						



DM-69

—SOLDERING SIDE—
1-629-564-11
VO-9850
VO-9800

DM-70: C PB PROCESSOR

**DM-70**

— COMPONENT SIDE —
1-629-565-11
VO-9850
VO-9800

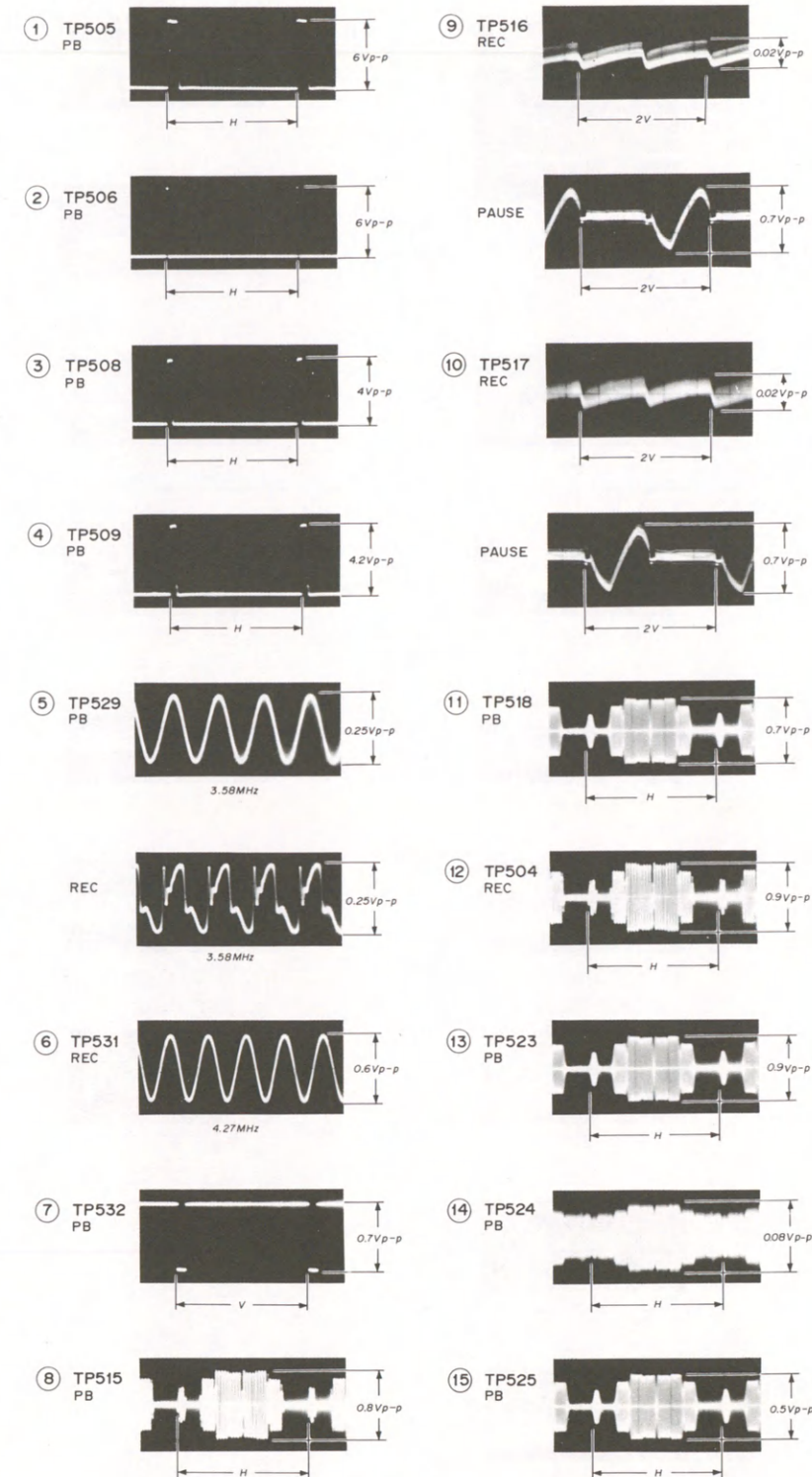
DM-70 (1-629-565-11) C

CN121	H-4	L524	E-8	TP523	F-2
CN122	H-5			TP524	G-2
CN123	H-6	Q508	F-6	TP525	H-2
CN124	F-9	Q509	E-4	TP529	F-5
CN125	H-4	Q520	F-8	TP531	G-8
CN126	H-7	Q521	C-7	TP532	H-5
CN127	H-8	Q522	H-4		
CN128	G-9	Q523	H-5	T502	F-5
CN129	G-9	Q524	G-6		
		Q525	H-6		

DL506	F-8	Q526	H-3		
		Q527	H-6		
D501	F-2	Q528	D-7		
D502	E-3	Q529	D-7		
D503	E-4	Q530	C-7		
D504	G-6	Q531	C-7		
D505	G-7	Q532	C-7		
D506	C-8	Q533	D-4		
D507	C-8	Q534	D-3		
D508	D-4	Q535	D-3		
D509	D-3	Q536	D-3		
D510	D-4	Q537	D-8		
D511	E-5	Q538	H-2		
D514	G-1	Q539	E-3		
D515	G-1	Q540	E-2		
D516	F-1	Q541	D-6		
D517	F-1	Q542	D-6		
D520	D-8	Q543	H-4		
D521	D-5	Q544	E-5		
D523	F-2	Q545	E-5		
D524	E-3	Q546	D-2		
		Q547	B-8		
E502	F-1	Q548	B-8		
E503	G-6	Q549	A-7		
E504	D-9	Q550	E-4		
E505	G-3				

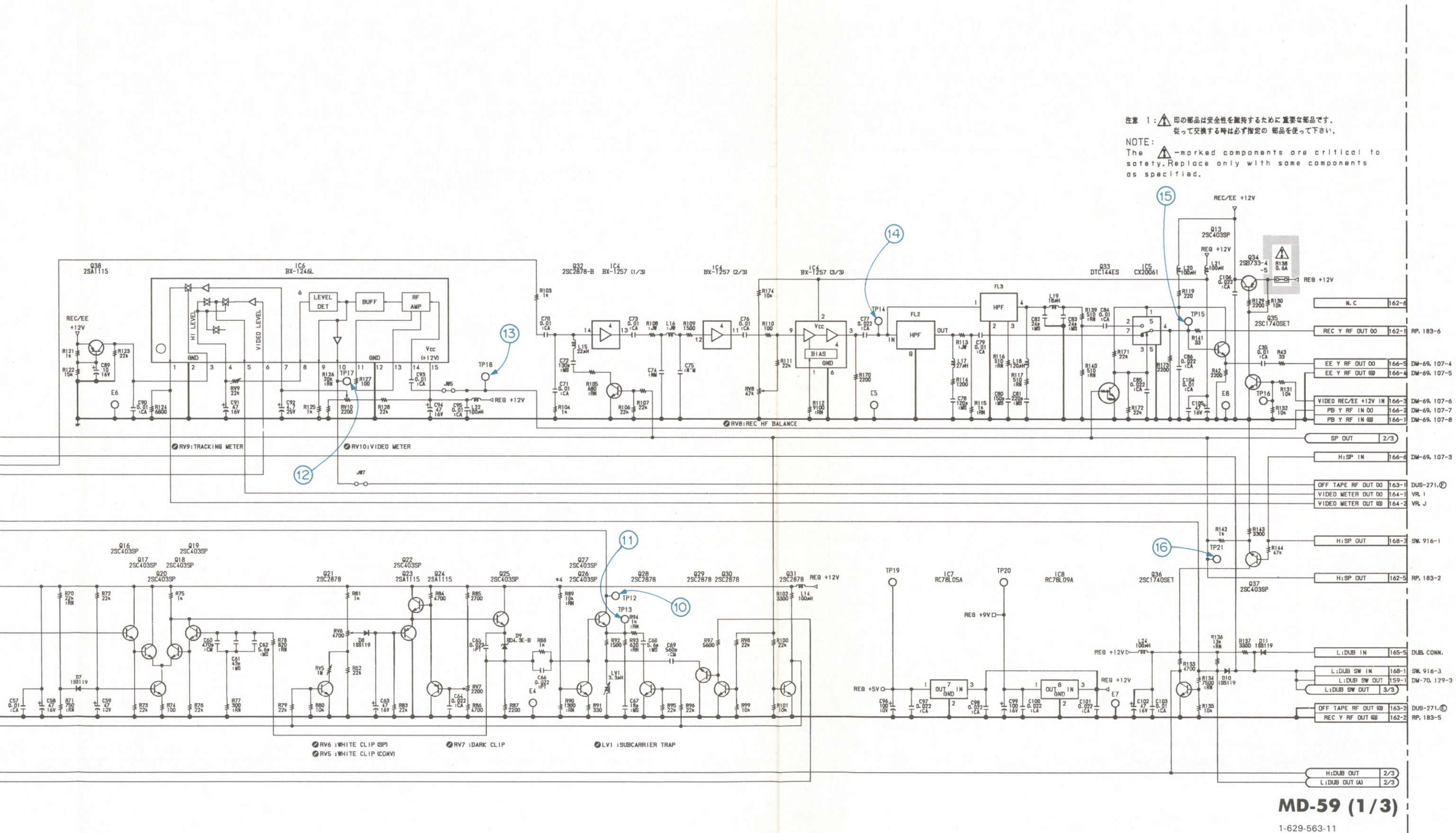
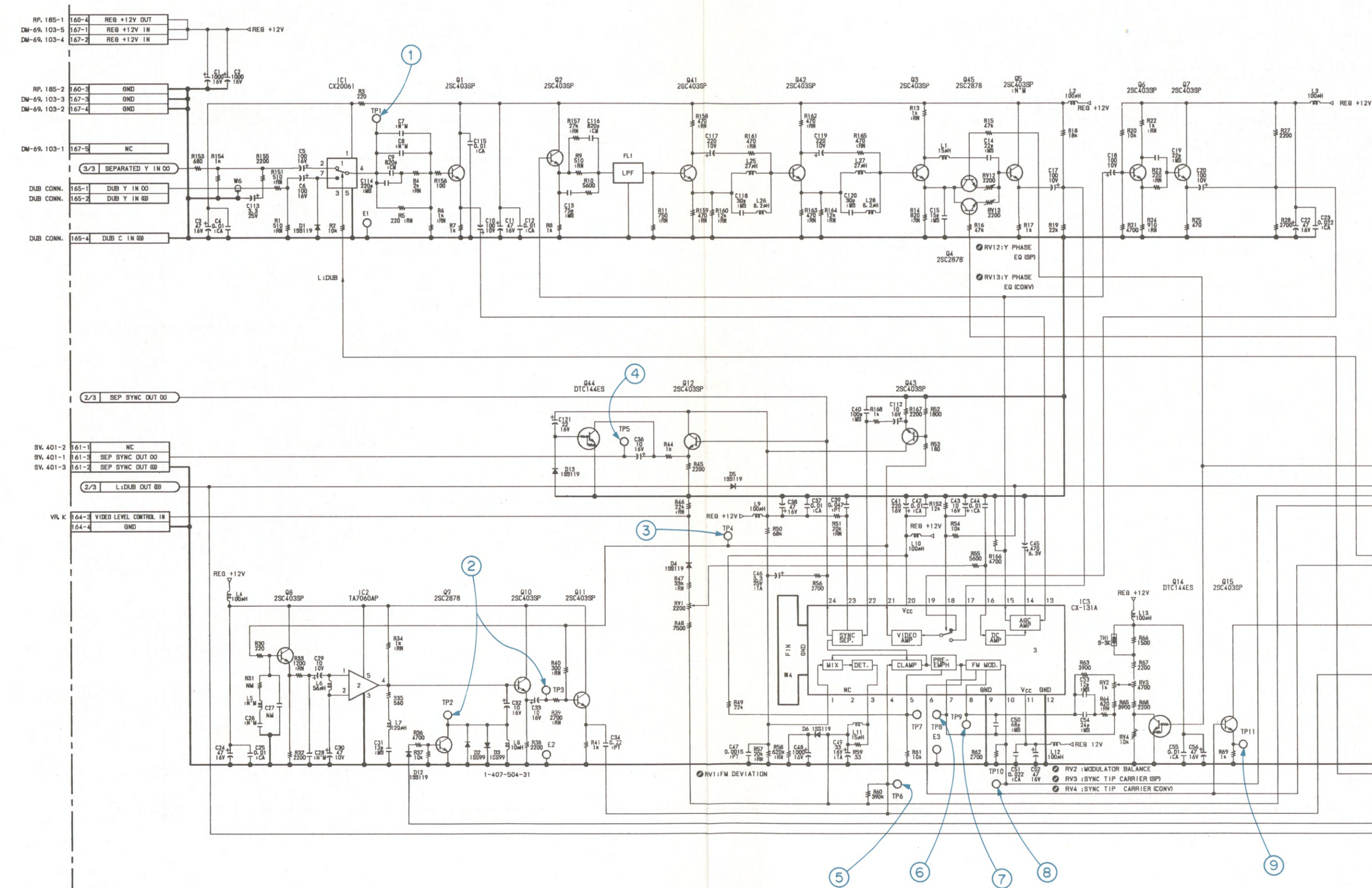
FL502	E-9	RV504	F-9
FL503	F-4	RV505	E-2
FL504	E-7	RV506	D-2
		RV507	D-2
		RV508	E-1
IC506	G-8	RV509	E-1
IC508	E-1	RV510	D-1
IC509	E-6	RV511	E-1
IC511	F-3	RV513	C-6
IC512	F-7	RV517	G-4
IC514	D-9	RV518	G-7
IC518	F-2	RV519	E-7
IC519	D-8	RV523	G-1
L506	G-8	S501	G-3

L507	H-2	TP504	G-9
L508	D-2	TP505	E-3
L509	G-5	TP506	G-2
L510	D-7	TP508	D-2
L511	D-3	TP509	E-2
L513	D-4	TP512	G-4
L515	F-4	TP513	E-4
L516	G-6	TP514	G-4
L517	D-7	TP515	G-8
L518	C-8	TP516	D-7
L519	E-9	TP517	E-7
L520	H-1	TP518	D-7
L522	F-2	TP519	D-8
L523	G-3		



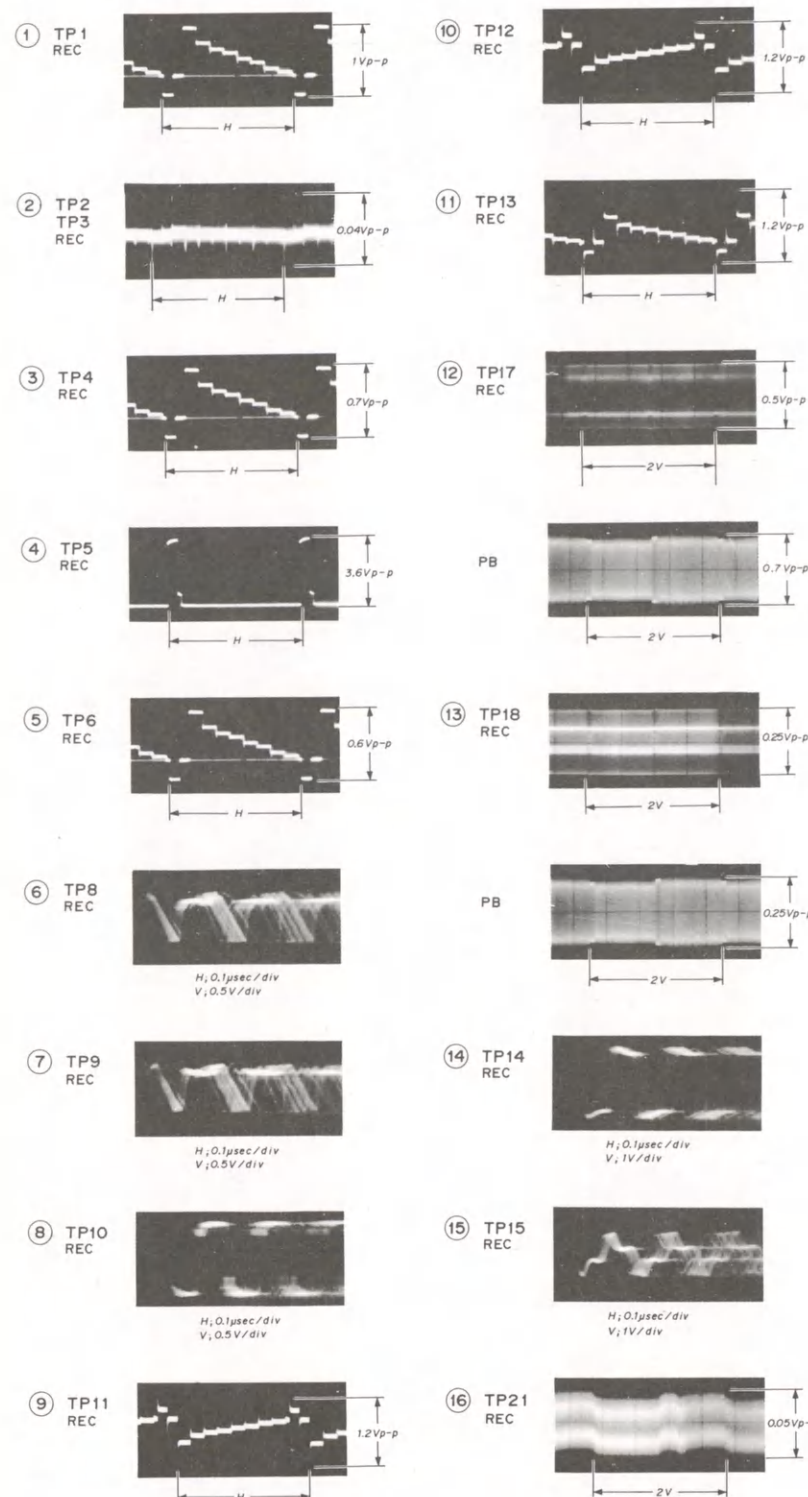
DM-70
1-629-565-11
VO-9850
VO-9800



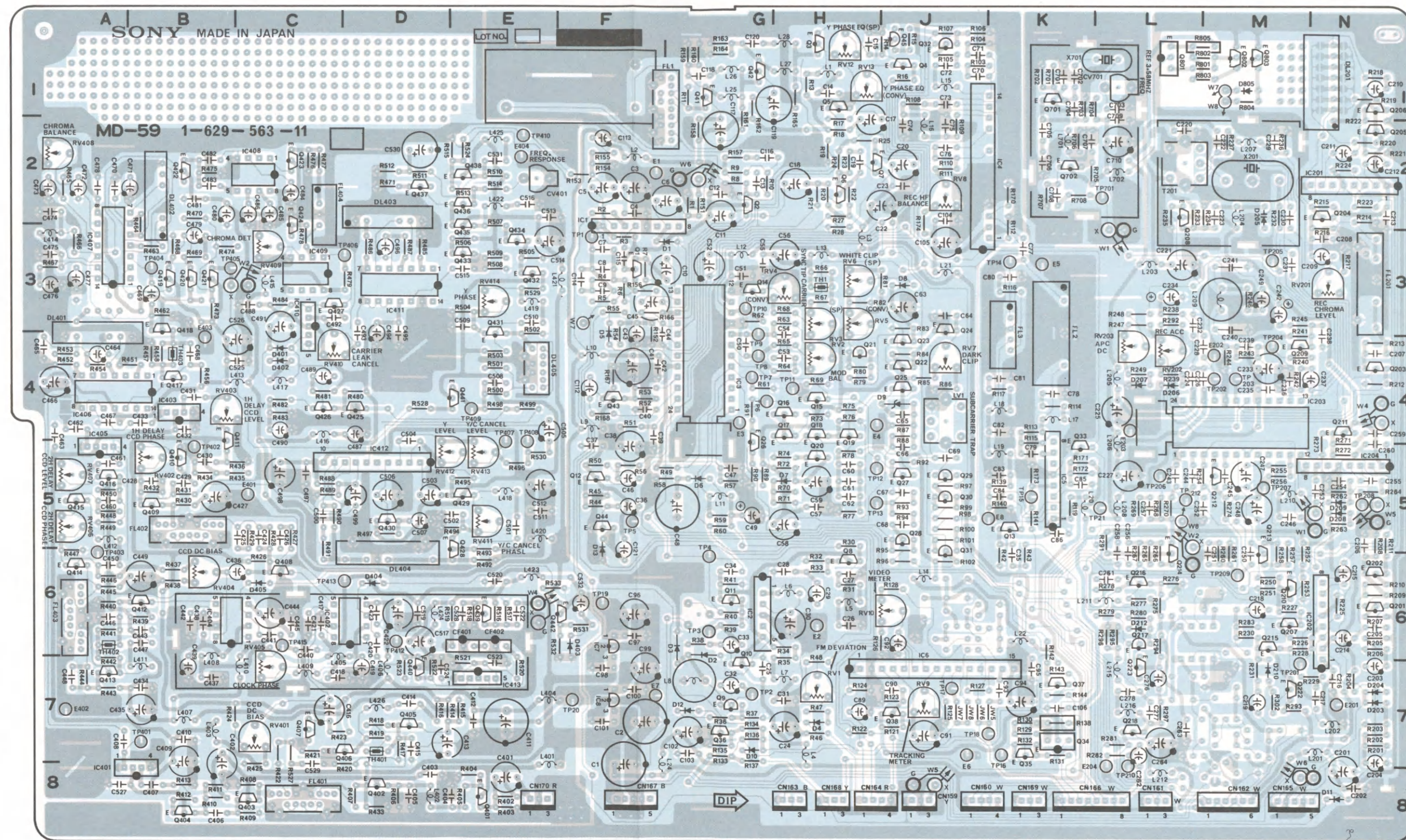


MD-59 (1/3): Y MODULATOR, METER DRIVE

MD-59 (1-629-563-11) C



CF401	E-6	IC2	G-6	L215	L-7	Q34	K-7	Q435	E-3
CF402	E-6	IC3	G-4	L216	L-7	Q35	K-7	Q436	E-2
		IC4	K-2	L401	E-7	Q36	G-7	Q437	D-2
CN159	J-8	IC5	K-5	L402	D-8	Q37	K-7	Q438	E-2
CN160	J-8	IC6	J-6	L403	B-7	Q38	J-7	Q439	E-6
CN161	L-8	IC7	F-6	L404	E-7	Q41	G-1	Q440	D-7
CN162	M-8	IC8	F-7	L405	C-7	Q42	G-1	Q441	E-4
CN163	H-8	IC201	N-2	L406	D-7	Q43	F-4	Q442	E-6
CN164	H-8	IC202	N-6	L407	B-7	Q44	F-5	Q701	K-1
CN165	M-8	IC203	N-4	L408	B-7	Q45	J-1	Q702	K-2
CN166	K-8	IC204	N-5	L409	C-6	Q201	N-6	Q801	L-1
CN167	F-8	IC401	A-8	L410	C-7	Q202	N-6	Q802	M-1
CN168	H-8	IC402	C-6	L411	B-7	Q203	N-4	Q803	M-1
CN169	K-8	IC403	B-4	L412	A-5	Q204	N-2		
CN170	E-8	IC404	B-6	L413	C-4	Q205	N-2	RV1	H-7
		IC405	A-4	L414	A-3	Q206	N-1	RV2	H-4
CV401	E-2	IC406	A-4	L415	C-3	Q207	M-6	RV3	H-4
CV701	L-1	IC407	A-3	L416	C-4	Q208	L-3	RV4	G-3
		IC408	C-2	L417	C-4	Q209	M-4	RV5	J-4
DL201	N-1	IC409	C-3	L418	E-5	Q210	M-6	RV6	H-3
DL401	A-3	IC410	C-3	L419	E-3	Q211	N-4	RV7	J-4
DL402	B-2	IC411	D-3	L420	E-5	Q212	M-5	RV8	J-2
DL403	D-2	IC412	D-5	L421	E-3	Q213	M-5	RV9	J-7
DL404	D-6	IC413	E-7	L422	E-2	Q214	L-6	RV10	H-6
DL405	E-4			L423	E-6	Q215	M-6	RV12	H-1
		LV1	J-4	L424	D-6	Q216	L-6	RV13	H-1
				L425	E-2	Q217	L-6	RV201	M-3
D1	G-3	L1	H-1	L426	D-7	Q218	L-7	RV202	L-4
D2	G-6	L2	F-2	L701	K-2	Q222	M-7	RV203	L-4
D3	G-6	L3	H-3	L702	L-2	Q223	L-7	RV401	C-7
D4	H-7	L4	H-7			Q401	E-8	RV402	B-5
D5	F-3	L5	H-6	Q1	F-3	Q402	D-8	RV403	B-4
D6	G-5	L6	H-7	Q2	G-2	Q403	C-8	RV404	B-6
D7	H-5	L7	H-7	Q3	H-1	Q404	B-8	RV405	C-6
D8	J-3	L8	G-7	Q4	J-1	Q405	D-7	RV406	A-5
D9	J-4	L9	F-4	Q5	H-1	Q406	D-7	RV407	A-5
D10	G-7	L10	F-4	Q6	H-2	Q407	C-7	RV408	A-2
D11	N-8	L11	G-5	Q7	H-2	Q408	C-6	RV409	C-3
D12	G-7	L12	G-3	Q8	H-6	Q409	B-5	RV410	C-4
D13	F-5	L13	H-3	Q9	G-7	Q410	B-5	RV411	E-5
D204	N-7	L14	J-6	Q10	G-6	Q411	C-4	RV412	D-5
D205	M-2	L15	J-1	Q11	G-6	Q412	B-6	RV413	E-5
D206	L-4	L17	K-4	Q12	F-5	Q413	A-7	RV414	E-3
D207	L-4	L18	K-4	Q13	K-5	Q414	A-6		
D208	N-5	L19	K-5	Q14	G-3	Q415	A-5	TH1	H-3
D209	N-5	L20	K-5	Q15	H-4	Q416	A-5	TH401	D-7
D210	M-7	L21	J-3	Q16	H-4	Q417	B-4	TH402	A-6
D212	L-6	L22	K-6	Q17	H-4	Q418	B-3	TH403	B-4
D401	C-4	L24	G-7	Q18	H-4	Q419	B-3		
D402	C-4	L25	G-1	Q19	H-4	Q420	B-3	T201	L-2
D403	F-6	L26	G-1	Q20	H-5	Q421	B-3		
D404	D-6	L27	H-1	Q21	H-4	Q422	B-2	X201	M-2
D405	C-6	L28	H-1	Q22	J-4	Q423	C-2	X701	K-1
D805	M-1	L201	N-7	Q23	J-4	Q424	C-2		
		L202	N-7	Q24	J-3	Q425	D-4		
FL1	F-1	L203	L-3	Q25	J-4	Q426	C-4		
FL2	K-3	L204	M-2	Q26	G-4	Q427	C-3		
FL3	K-3	L205	L-4	Q27	J-5	Q428	E-6		
FL201	N-3	L206	L-4	Q28	J-5	Q429	E-5		
FL401	C-8	L207	M-2	Q29	J-5	Q430	D-5		
FL402	B-5	L208	L-5	Q30	J-5	Q431	E-3		
FL403	A-6	L209	L-3	Q31	J-6	Q432	E-3		
FL404	C-2	L210	M-5	Q32	J-1	Q433	E-3		
		L211	K-6	Q33	K-4	Q434	E-3		
IC1	F-2	L212	L-8						



MD-59

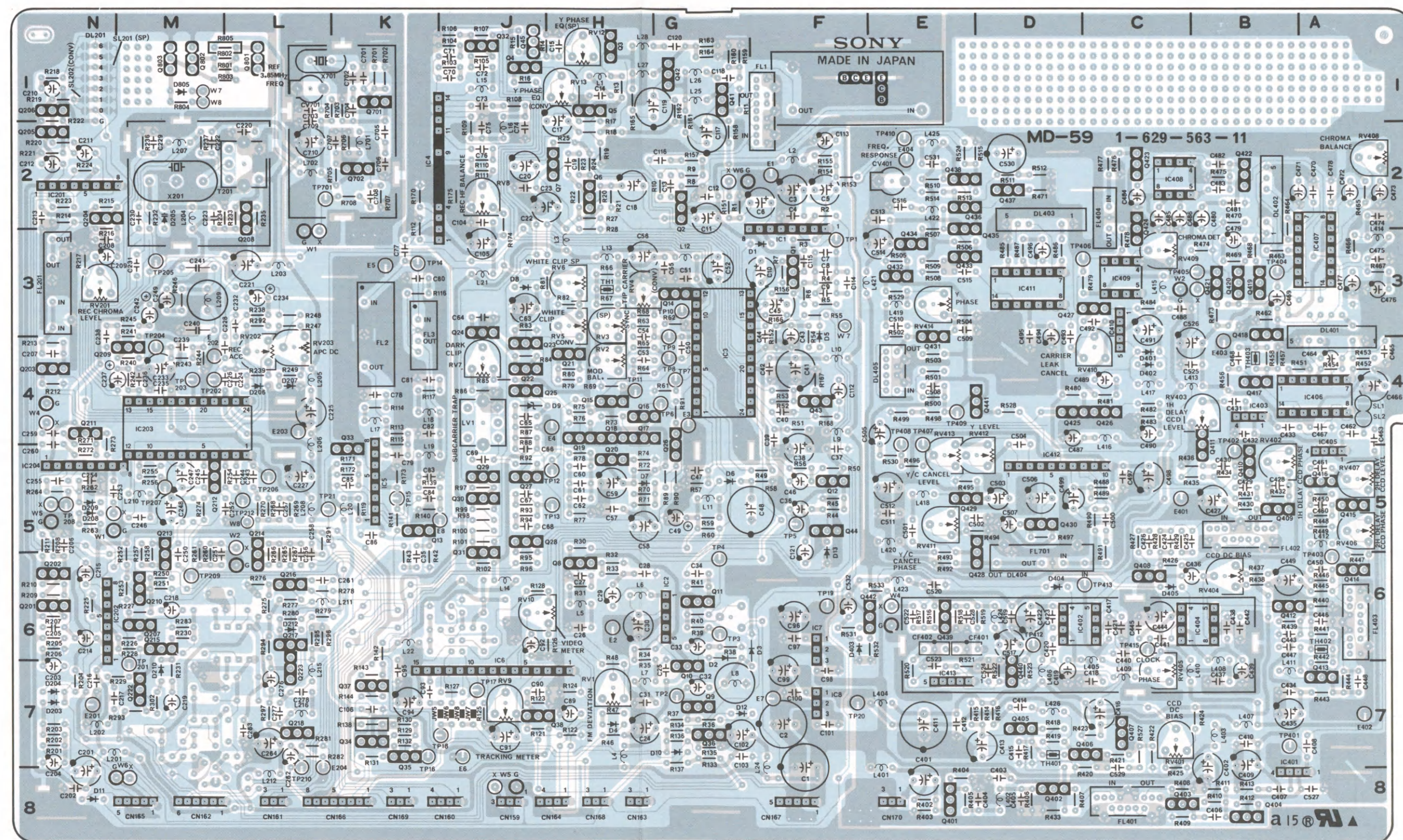
— COMPONENT SIDE —
1-629-563-11
VO-9850

MD-59 (1/3): Y MODULATOR, METER DRIVE

MD-59 (1-629-563-11) S

E1	F-2
E2	H-6
E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
E8	K-5
E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2

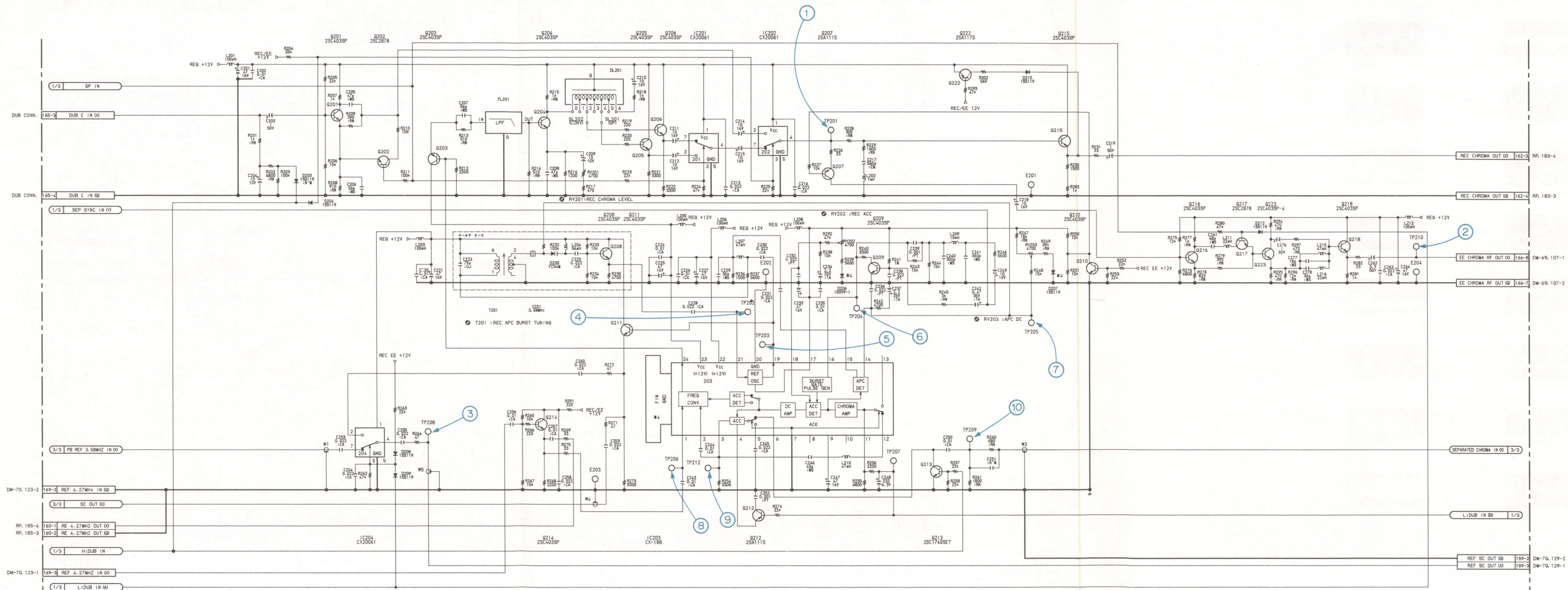
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TP2	G-7
TP3	G-6
TP4	G-5
TP5	F-5
TP6	G-4
TP7	G-4
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TP9	G-4
TP10	G-3
TP11	H-4
TP12	H-5
TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-2



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— SOLDERING SIDE —
1-629-563-11
VO-9850

MD-59 (2/3): C REC PROCESSOR

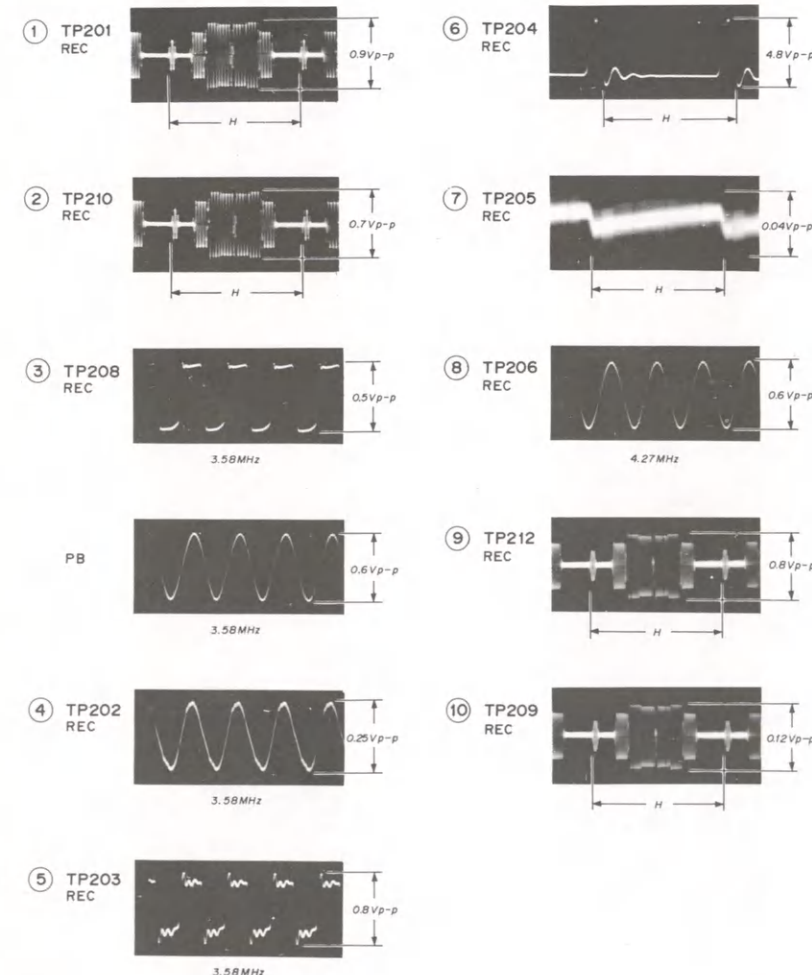


MD-59 (2/3)

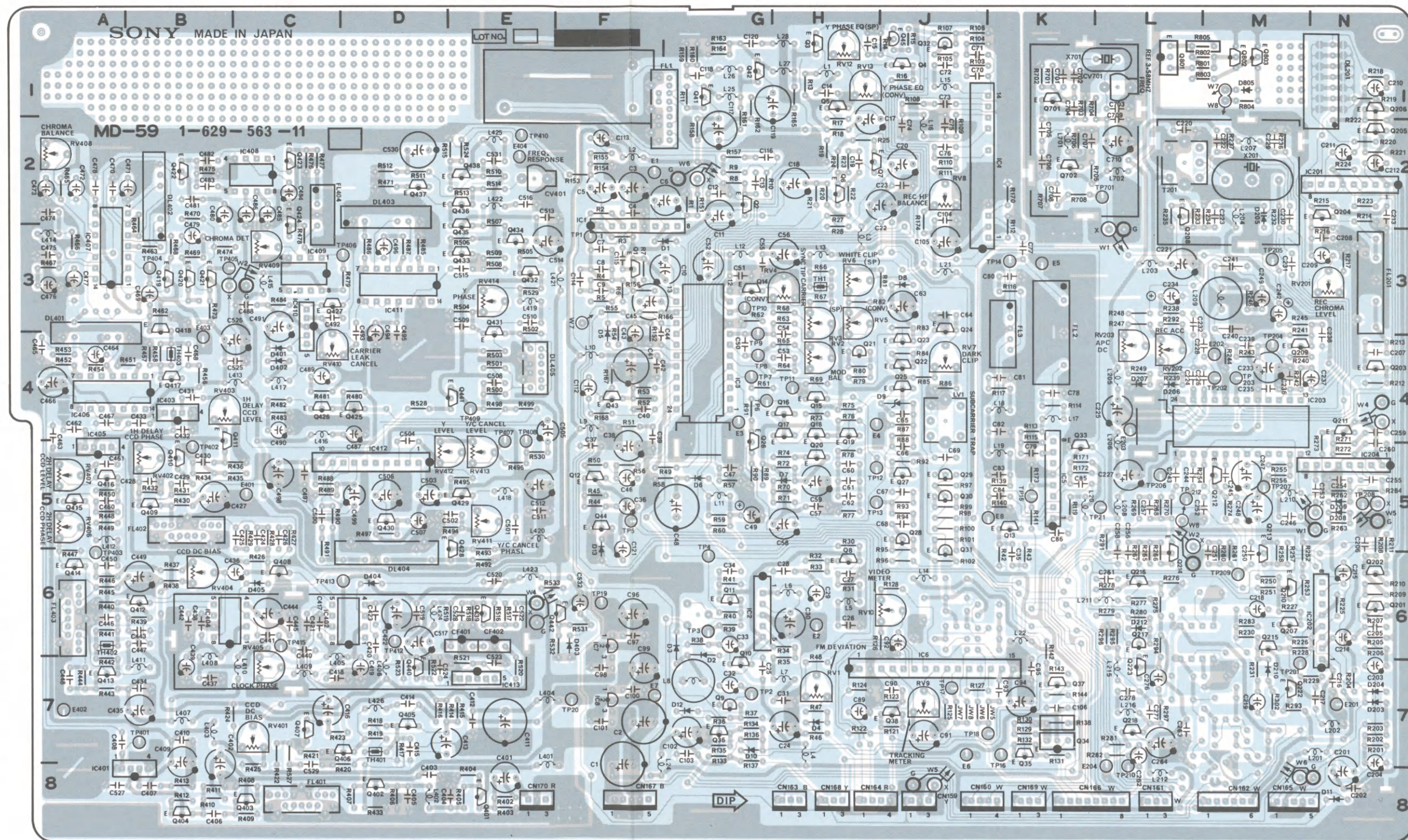
1-629-563-11
VO-9850

MD-59 (2/3): C REC PROCESSOR

MD-59 (1-629-563-11) C



CF401	E-6	IC2	G-6	L215	L-7	Q34	K-7	Q435	E-3
CF402	E-6	IC3	G-4	L216	L-7	Q35	K-7	Q436	E-2
		IC4	K-2	L401	E-7	Q36	G-7	Q437	D-2
CN159	J-8	IC5	K-5	L402	D-8	Q37	K-7	Q438	E-2
CN160	J-8	IC6	J-6	L403	B-7	Q38	J-7	Q439	E-6
CN161	L-8	IC7	F-6	L404	E-7	Q41	G-1	Q440	D-7
CN162	M-8	IC8	F-7	L405	C-7	Q42	G-1	Q441	E-4
CN163	H-8	IC201	N-2	L406	D-7	Q43	F-4	Q442	E-6
CN164	H-8	IC202	N-6	L407	B-7	Q44	F-5	Q701	K-1
CN165	M-8	IC203	N-4	L408	B-7	Q45	J-1	Q702	K-2
CN166	K-8	IC204	N-5	L409	C-6	Q201	N-6	Q801	L-1
CN167	F-8	IC401	A-8	L410	C-7	Q202	N-6	Q802	M-1
CN168	H-8	IC402	C-6	L411	B-7	Q203	N-4	Q803	M-1
CN169	K-8	IC403	B-4	L412	A-5	Q204	N-2		
CN170	E-8	IC404	B-6	L413	C-4	Q205	N-2		
		IC405	A-4	L414	A-3	Q206	N-1	RV1	H-7
CV401	E-2	IC406	A-4	L415	C-3	Q207	M-6	RV2	H-4
CV701	L-1	IC407	A-3	L416	C-4	Q208	L-3	RV4	G-3
		IC408	C-2	L417	C-4	Q209	M-4	RV5	J-4
DL201	N-1	IC409	C-3	L418	E-5	Q210	M-6	RV6	H-3
DL401	A-3	IC410	C-3	L419	E-3	Q211	N-4	RV7	J-4
DL402	B-2	IC411	D-3	L420	E-5	Q212	M-5	RV8	J-2
DL403	D-2	IC412	D-5	L421	E-3	Q213	M-5	RV9	J-7
DL404	D-6	IC413	E-7	L422	E-2	Q214	L-6	RV10	H-6
DL405	E-4			L423	E-6	Q215	M-6	RV12	H-1
		LV1	J-4	L424	D-6	Q216	L-6	RV13	H-1
				L425	E-2	Q217	L-6	RV201	M-3
D1	G-3			L426	D-7	Q218	L-7	RV202	L-4
D2	G-6	L1	H-1	L701	K-2	Q222	M-7	RV203	L-4
D3	G-6	L2	F-2	L702	L-2	Q223	L-7	RV401	C-7
D4	H-7	L3	H-3			Q401	E-8	RV402	B-5
D5	F-3	L4	H-7	Q1	F-3	Q402	D-8	RV403	B-4
D6	G-5	L6	H-6	Q2	G-2	Q403	C-8	RV404	B-6
D7	H-5	L7	H-7	Q3	H-1	Q404	B-8	RV405	C-6
D8	J-3	L8	G-7	Q4	J-1	Q405	D-7	RV406	A-5
D9	J-4	L9	F-4	Q5	H-1	Q406	D-7	RV407	A-5
D10	G-7	L10	F-4	Q6	H-2	Q407	C-7	RV408	A-2
D11	N-8	L11	G-5	Q7	H-2	Q408	C-6	RV409	C-3
D12	G-7	L12	G-3	Q8	H-6	Q409	B-5	RV410	C-4
D13	F-5	L13	H-3	Q9	G-7	Q410	B-5	RV411	E-5
D204	N-7	L14	J-6	Q10	G-6	Q411	C-4	RV412	D-5
D205	M-2	L15	J-1	Q11	G-6	Q412	B-6	RV413	E-5
D206	L-4	L17	K-4	Q12	F-5	Q413	A-7	RV414	E-3
D207	L-4	118	K-4	Q13	K-5	Q414	A-6		
D208	N-5	L19	K-5	Q14	G-3	Q415	A-5	TH1	H-3
D209	N-5	L20	K-5	Q15	H-4	Q416	A-5	TH401	D-7
D210	M-7	L21	J-3	Q16	H-4	Q417	B-4	TH402	A-6
D212	L-6	L22	K-6	Q17	H-4	Q418	B-3	TH403	B-4
D401	C-4	L24	G-7	Q18	H-4	Q419	B-3		
D402	C-4	L25	G-1	Q19	H-4	Q420	B-3	T201	L-2
D403	F-6	L26	G-1	Q20	H-5	Q421	B-3		
D404	D-6	L27	H-1	Q21	H-4	Q422	B-2	X201	M-2
D405	C-6	L28	H-1	Q22	J-4	Q423	C-2	X701	K-1
DB05	M-1	L201	N-7	Q23	J-4	Q424	C-2		
		L202	N-7	Q24	J-3	Q425	D-4		
FL1	F-1	L203	L-3	Q25	J-4	Q426	C-4		
FL2	K-3	L204	M-2	Q26	G-4	Q427	C-3		
FL3	K-3	L205	L-4	Q27	J-5	Q428	E-6		
FL201	N-3	L206	L-4	Q28	J-5	Q429	E-5		
FL401	C-8	L207	M-2	Q29	J-5	Q430	D-5		
FL402	B-5	L208	L-5	Q30	J-5	Q431	E-3		
FL403	A-6	L209	L-3	Q31	J-6	Q432	E-3		
FL404	C-2	L210	M-5	Q32	J-1	Q433	E-3		
		L211	K-6	Q33	K-4	Q434	E-3		
IC1	F-2	L212	L-8						



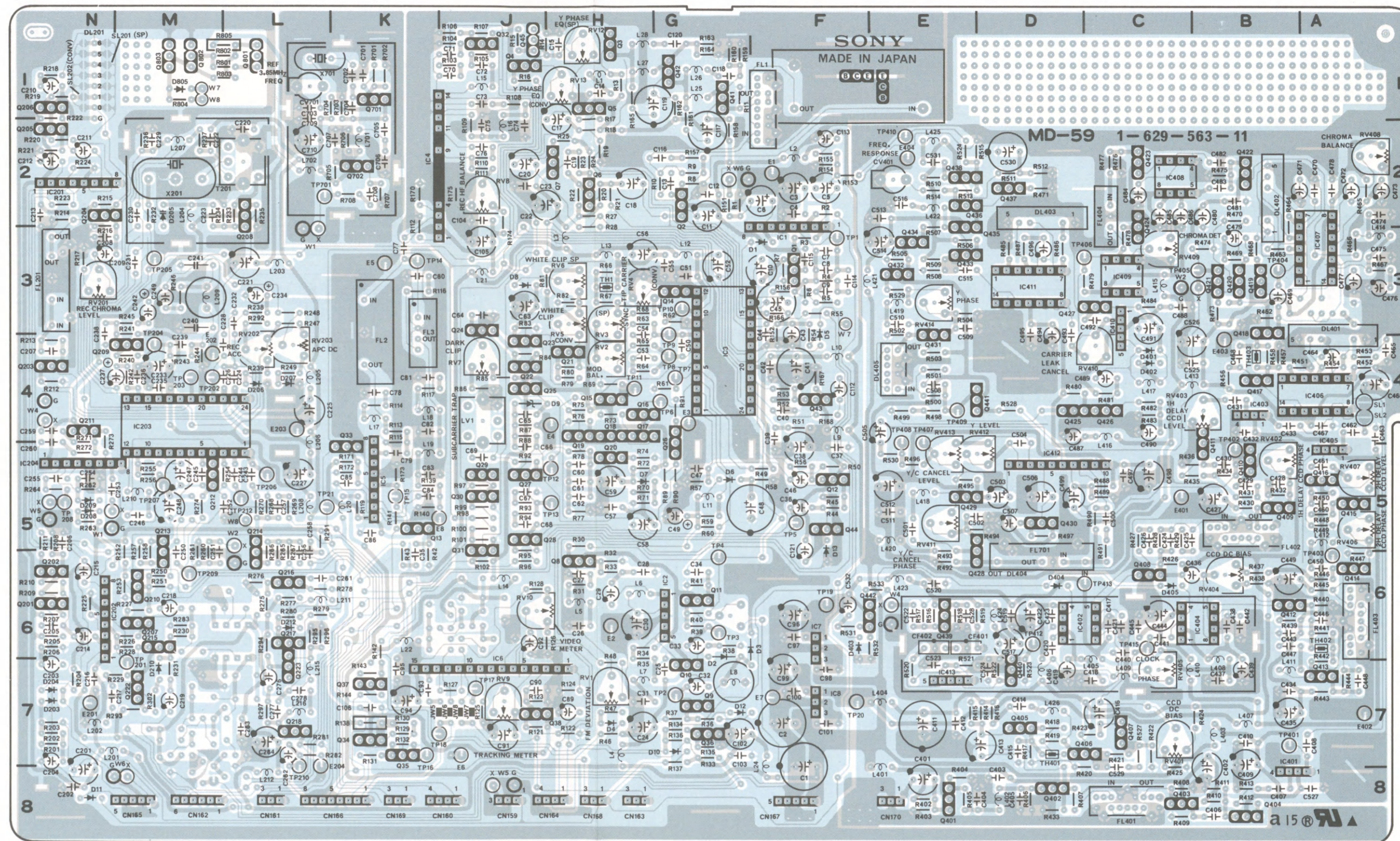
MD-59

— COMPONENT SIDE —
1-629-563-11
VO-9850

MD-59 (2/3): C REC PROCESSOR

MD-59 (1-629-563-11) S

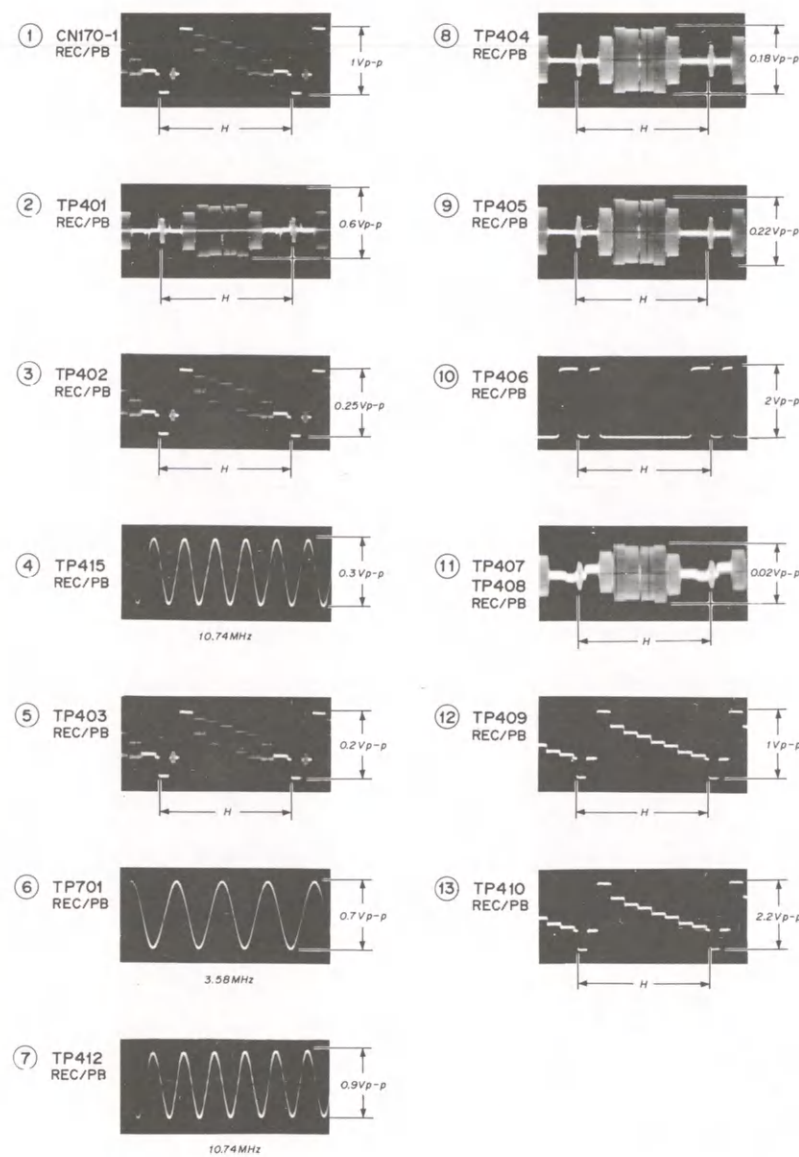
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E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
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E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2
TP1	F-3
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TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-8

**MD-59**

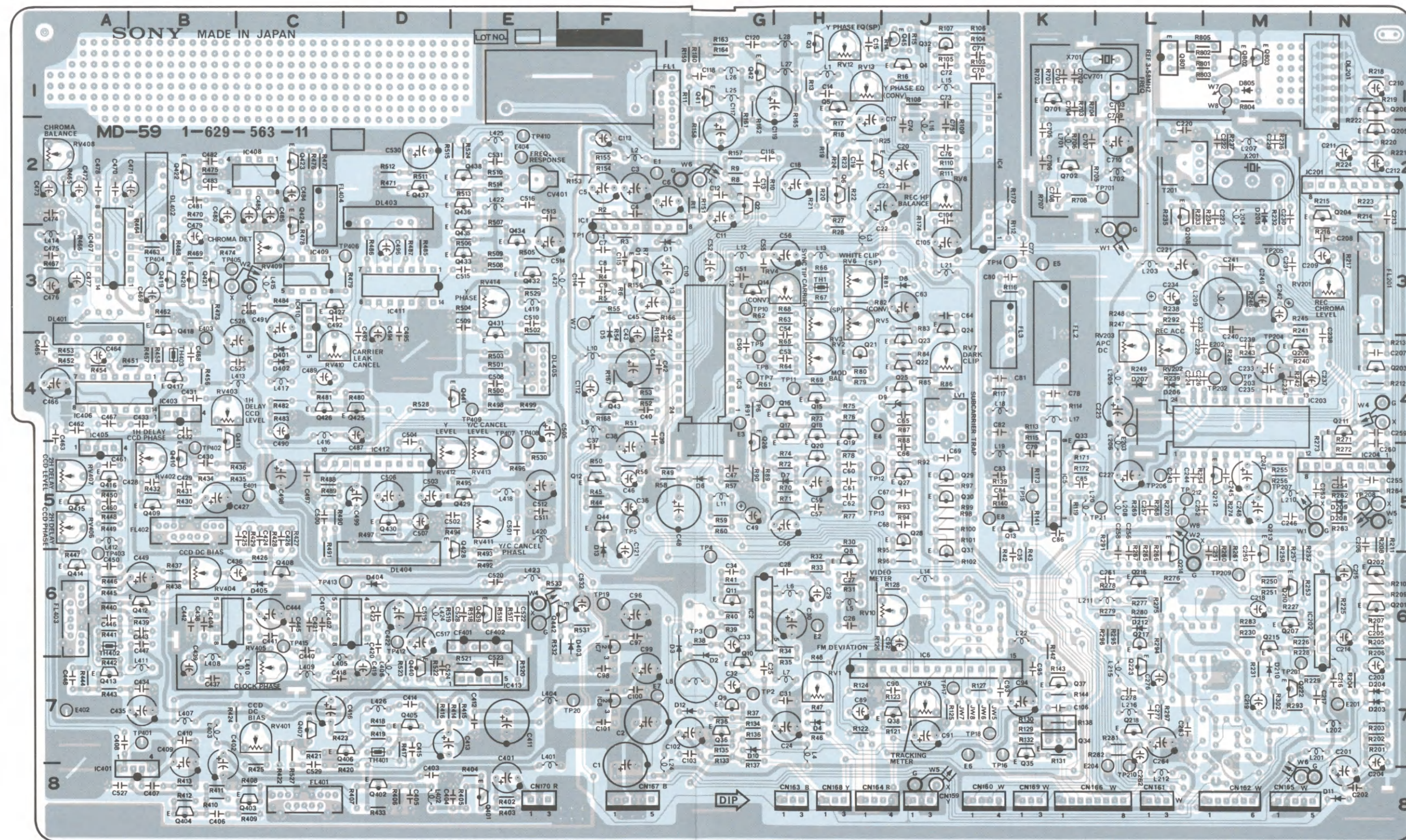
—SOLDERING SIDE—
1-629-563-11
VO-9850

MD-59 (3/3): Y/C SEPARATOR

MD-59 (1-629-563-11) C



CF401	E-6	IC2	G-6	L215	L-7	Q34	K-7	Q435	E-3
CF402	E-6	IC3	G-4	L216	L-7	Q35	K-7	Q436	E-2
CN159	J-8	IC5	K-5	L402	D-8	Q37	K-7	Q438	E-2
CN160	J-8	IC6	J-6	L403	B-7	Q38	J-7	Q439	E-6
CN161	L-8	IC7	F-6	L404	E-7	Q41	G-1	Q440	D-7
CN162	M-8	IC8	F-7	L405	C-7	Q42	G-1	Q441	E-4
CN163	H-8	IC201	N-2	L406	D-7	Q43	F-4	Q442	E-6
CN164	H-8	IC202	N-6	L407	B-7	Q44	F-5	Q701	K-1
CN165	M-8	IC203	N-4	L408	B-7	Q45	J-1	Q702	K-2
CN166	K-8	IC204	N-5	L409	C-6	Q201	N-6	Q801	L-1
CN167	F-8	IC401	A-8	L410	C-7	Q202	N-6	Q802	M-1
CN168	H-8	IC402	C-6	L411	B-7	Q203	N-4	Q803	M-1
CN169	K-8	IC403	B-4	L412	A-5	Q204	N-2		
CN170	E-8	IC404	B-6	L413	C-4	Q205	N-2	RV1	H-7
		IC405	A-4	L414	A-3	Q206	N-1	RV2	H-4
CV401	E-2	IC406	A-4	L415	C-3	Q207	M-6	RV3	H-4
CV701	L-1	IC407	A-3	L416	C-4	Q208	L-3	RV4	G-3
		IC408	C-2	L417	C-4	Q209	M-4	RV5	J-4
DL201	N-1	IC409	C-3	L418	E-5	Q210	M-6	RV6	H-3
DL401	A-3	IC410	C-3	L419	E-3	Q211	N-4	RV7	J-4
DL402	B-2	IC411	D-3	L420	E-5	Q212	M-5	RV8	J-2
DL403	D-2	IC412	D-5	L421	E-3	Q213	M-5	RV9	J-7
DL404	D-6	IC413	E-7	L422	E-2	Q214	L-6	RV10	H-6
DL405	E-4			L423	E-6	Q215	M-6	RV12	H-1
		LV1	J-4	L424	D-6	Q216	L-6	RV13	H-1
D1	G-3			L425	E-2	Q217	L-6	RV201	M-3
D2	G-6	L1	H-1	L426	D-7	Q218	L-7	RV202	L-4
D3	G-6	L2	F-2	L701	K-2	Q222	M-7	RV203	L-4
D4	H-7	L3	H-3	L702	L-2	Q223	L-7	RV401	C-7
D5	F-3	L4	H-7			Q401	E-8	RV402	B-5
D6	G-5	L6	H-6	Q1	F-3	Q402	D-8	RV403	B-4
D7	H-5	L7	H-7	Q2	G-2	Q403	C-8	RV404	B-6
D8	J-3	L8	G-7	Q3	H-1	Q404	B-8	RV405	C-6
D9	J-4	L9	F-4	Q4	J-1	Q405	D-7	RV406	A-5
D10	G-7	L10	F-4	Q5	H-1	Q406	D-7	RV407	A-5
D11	N-8	L11	G-5	Q6	H-2	Q407	C-7	RV408	A-2
D12	G-7	L12	G-3	Q7	H-2	Q408	C-6	RV409	C-3
D13	F-5	L13	H-3	Q8	H-6	Q409	B-5	RV410	C-4
D204	N-7	L14	J-6	Q9	G-7	Q410	B-5	RV411	E-5
D205	M-2	L15	J-1	Q10	G-6	Q411	C-4	RV412	D-5
D206	L-4	L17	K-4	Q11	G-6	Q412	B-6	RV413	E-5
D207	L-4	118	K-4	Q12	F-5	Q413	A-7	RV414	E-3
D208	N-5	L19	K-5	Q13	K-5	Q414	A-6		
D209	N-5	L20	K-5	Q14	G-3	Q415	A-5	TH1	H-3
D210	M-7	L21	J-3	Q15	H-4	Q416	A-5	TH401	D-7
D212	L-6	L22	K-6	Q16	H-4	Q417	B-4	TH402	A-6
D401	C-4	L24	G-7	Q17	H-4	Q418	B-3	TH403	B-4
D402	C-4	L25	G-1	Q18	H-4	Q419	B-3		
D403	F-6	L26	G-1	Q19	H-4	Q420	B-3	T201	L-2
D404	D-6	L27	H-1	Q20	H-5	Q421	B-3		
D405	C-6	L28	H-1	Q21	H-4	Q422	B-2	X201	M-2
D805	M-1	L201	N-7	Q22	J-4	Q423	C-2	X701	K-1
		L202	N-7	Q23	J-4	Q424	C-2		
FL1	F-1	L203	L-3	Q24	J-3	Q425	D-4		
FL2	K-3	L204	M-2	Q25	J-4	Q426	C-4		
FL3	K-3	L205	L-4	Q26	G-4	Q427	C-3		
FL201	N-3	L206	L-4	Q27	J-5	Q428	E-6		
FL401	C-8	L207	M-2	Q28	J-5	Q429	E-5		
FL402	B-5	L208	L-5	Q29	J-5	Q430	D-5		
FL403	A-6	L209	L-3	Q30	J-5	Q431	E-3		
FL404	C-2	L210	M-5	Q31	J-6	Q432	E-3		
		L211	K-6	Q32	J-1	Q433	E-3		
IC1	F-2	L212	L-8	Q33	K-4	Q434	E-3		



MD-59

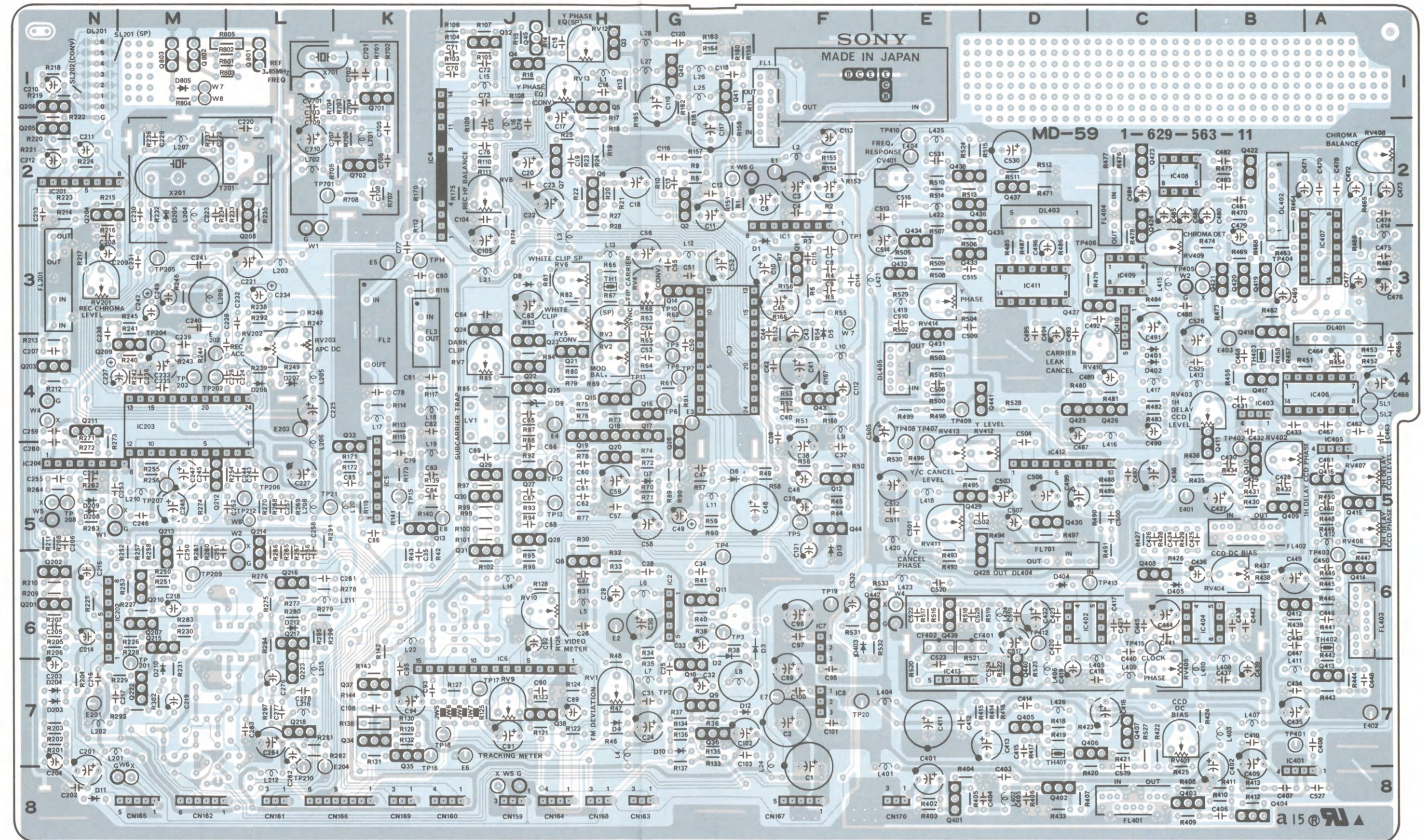
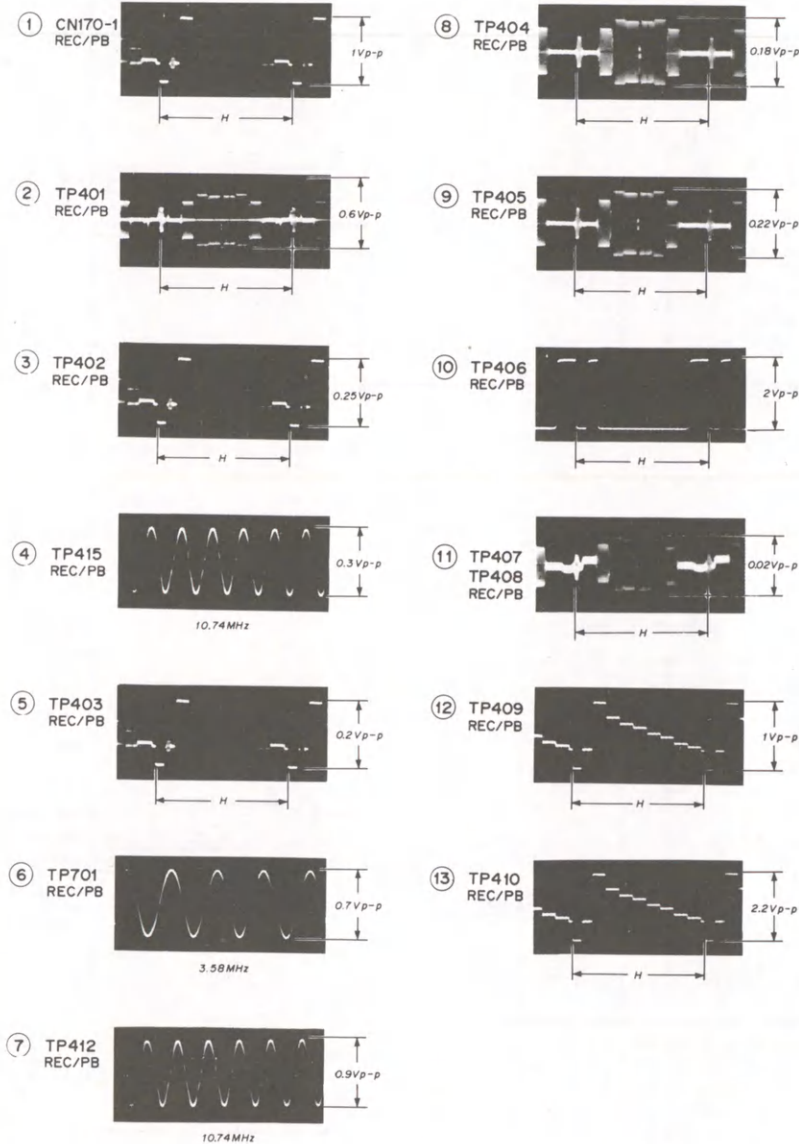
— COMPONENT SIDE —
1-629-563-11
VO-9850

MD-59 (3/3): Y/C SEPARATOR

MD-59 (1-629-563-11) S

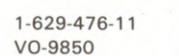
E1	F-2
E2	H-6
E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
E8	K-5
E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2

TP1	F-3
TP2	G-7
TP3	G-6
TP4	G-5
TP5	F-5
TP6	G-4
TP7	G-4
TP8	G-4
TP9	G-4
TP10	G-3
TP11	H-4
TP12	H-5
TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-6

**MD-59**

—SOLDERING SIDE—
1-629-563-11
VO-9850

RP-40



NOTE:
The -marked components are critical to safety. Replace only with same components as specified.

RP-40: REC/PB AMPLIFIER, ROTARY ERASE DRIVE

RP-40 (1-629-476-11) C

RP-40 (1-629-476-11) S

CN181	B-1	T1	C-1	E1	B-2
CN182	B-1	T2	D-2	E2	C-2
CN183	B-2	T3	D-1	E3	D-2
CN184	D-1	T4	D-1	E4	D-1
CN185	B-2	T5	D-1	E101	A-1
CN186	D-1			E102	A-2
CN187	A-1				

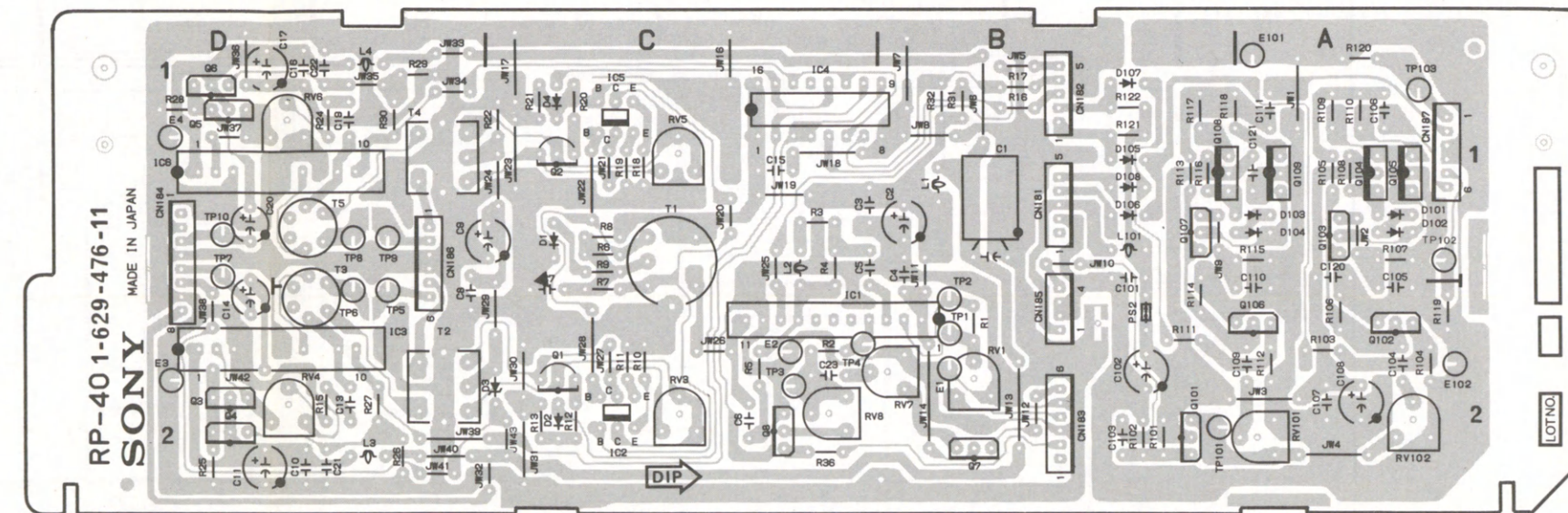
D1	C-1	TP1	B-2
D2	C-2	TP2	B-1
D3	D-2	TP3	C-2
D4	C-1	TP4	C-2
D101	A-1	TP5	D-1
D102	A-1	TP6	D-1
D103	A-1	TP7	D-1
D104	A-1	TP8	D-1
D105	B-1	TP9	D-1
D106	B-1	TP10	D-1
D107	B-1	TP101	B-2
D108	B-1	TP102	A-1
		TP103	A-1

IC1	C-2
IC2	C-2
IC3	D-2
IC4	C-1
IC5	C-1
IC6	D-1

L1	B-1
L2	C-1
L3	D-2
L4	D-1
L101	B-1
PS2	B-2

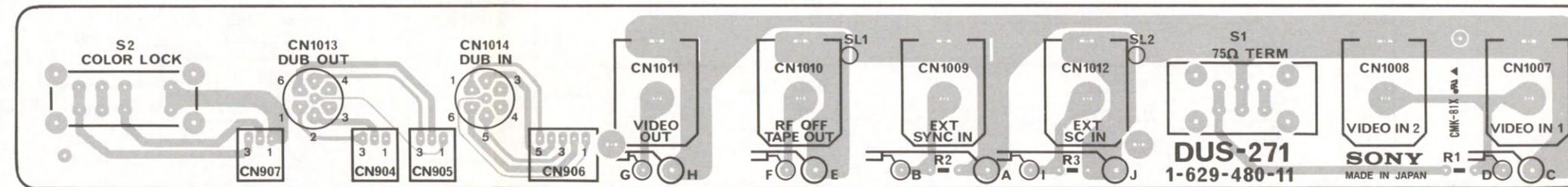
Q1	C-2
Q2	C-1
Q3	D-2
Q4	D-2
Q5	D-1
Q6	D-1
Q7	B-2
Q8	C-2
Q101	B-2
Q102	A-2
Q103	A-1
Q104	A-1
Q105	A-1
Q106	A-2
Q107	B-1
Q108	B-1
Q109	A-1

RV1	B-2
RV3	C-2
RV4	D-2
RV5	C-1
RV6	D-1
RV7	B-2
RV8	C-2
RV101	A-2
RV102	A-2



RP-40

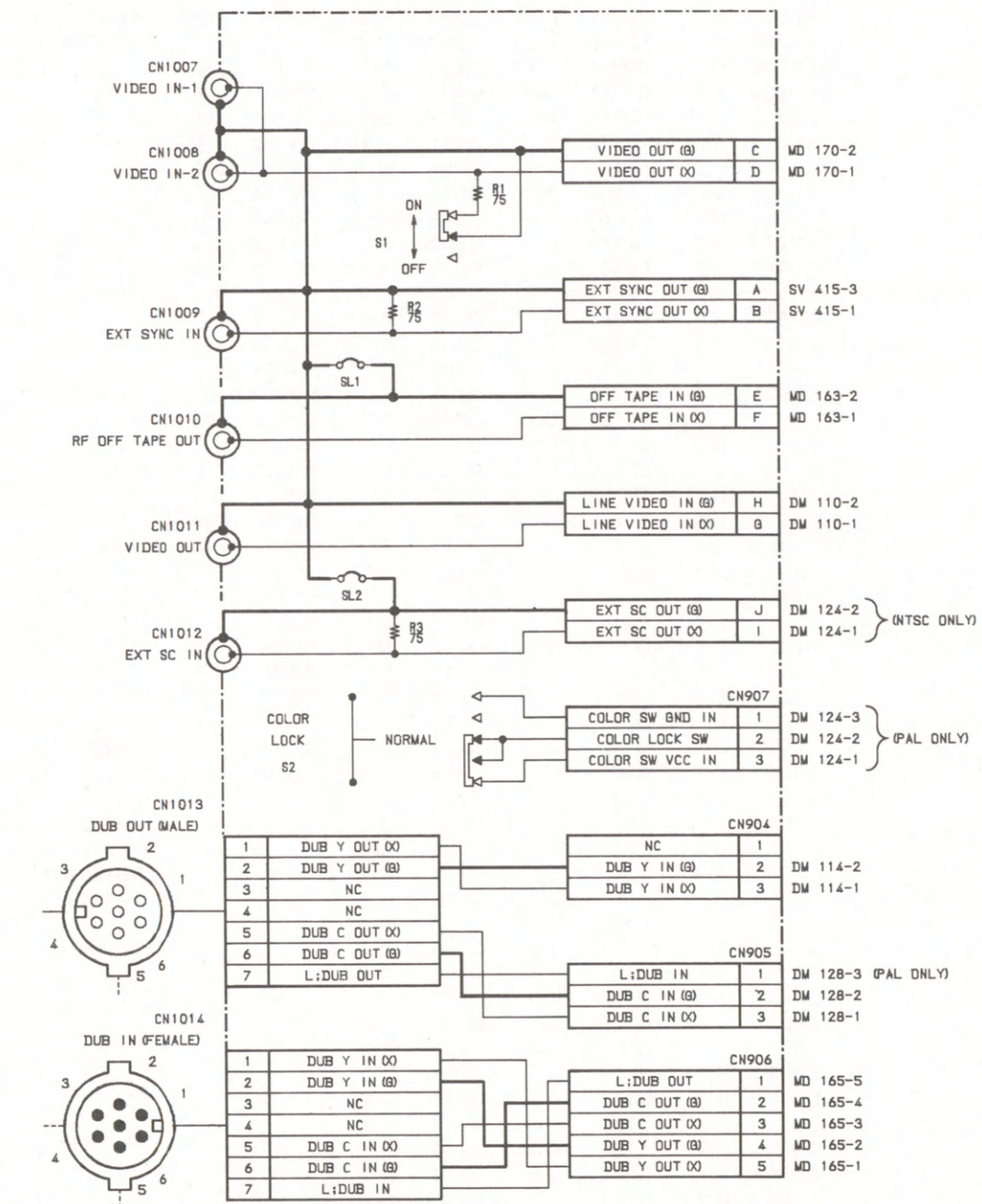
— COMPONENT SIDE —
1-629-476-11
VO-9850



DUS-271

— COMPONENT SIDE —
1-629-480-11
VO-9850
VO-9850P
VO-9800
VO-9800P

DUS-271: CONNECTOR



DUS-271

1-629-480-11
VO-9850
VO-9850P
VO-9800
VO-9800P

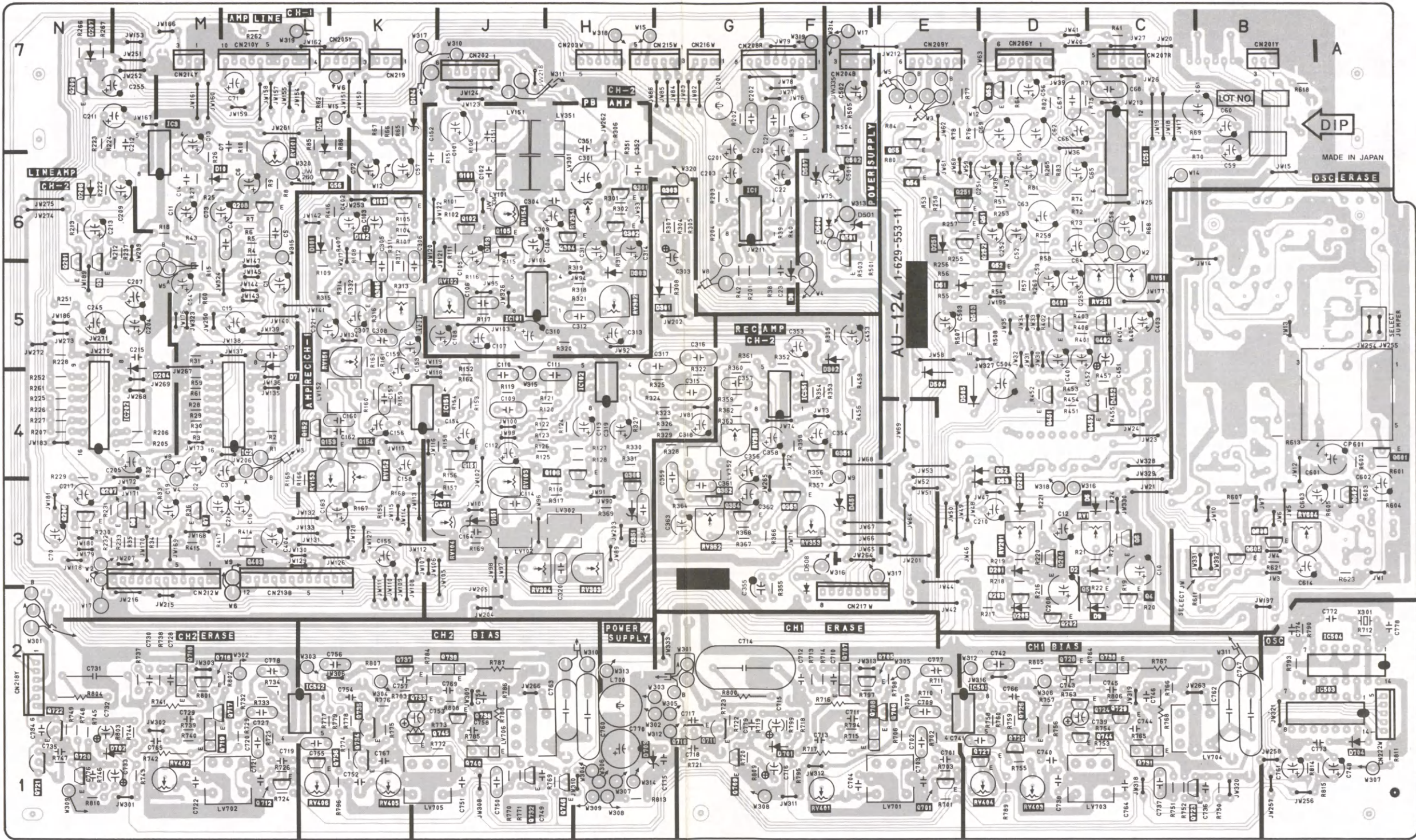
AU-124 (1/2): REC/PB AMPLIFIER, FULL ERASE OSCILLATOR

AU-124 (1-629-553-11) C

CN201	B-7	IC51	C-7	Q304	H-6	Q738	J-1	E1	M-5
CN202	J-7	IC101	J-5	Q305	K-5	Q739	J-1	E151	H-7
CN203	H-7	IC102	H-4	Q306	H-4	Q740	J-1	E201	M-7
CN204	F-7	IC151	J-4	Q351	F-4	Q744	C-1	E501	M-3
CN205	K-7	IC202	N-4	Q352	G-3	Q745	J-1	E502	F-7
CN206	D-7	IC351	F-4	Q353	F-3	Q746	H-1	E601	A-4
CN207	C-7	IC501	E-2	Q354	G-3			E602	A-7
CN208	G-7	IC502	L-2	Q401	D-5	RV1	D-3	E701	G-2
CN209	E-7	IC503	A-2	Q402	C-5	RV51	C-5	E702	N-2
CN210	L-7	IC504	A-2	Q403	L-3	RV101	L-7	E704	K-2
CN212	M-2			Q451	F-3	RV102	J-5	E705	D-2
CN213	L-3	LV101	J-6	Q452	C-4	RV103	J-4	E706	H-2
CN214	M-7	LV102	J-3	Q501	F-6	RV104	J-3	E707	E-2
CN215	G-7	LV151	J-7	Q502	F-6	RV151	K-5	E708	B-1
CN216	G-7	LV152	K-4	Q503	E-5	RV152	K-4		
CN217	F-3	LV301	H-6	Q601	A-4	RV153	K-4	TP101	J-7
CN218	M-2	LV302	H-3	Q602	A-3	RV154	J-5	TP102	J-7
CN219	K-7	LV351	H-7	Q605	B-3	RV201	D-3	TP103	H-4
CN222	A-1	LV352	G-4	Q608	B-3	RV251	C-5	TP151	K-7
CP601	A-4	LV701	E-1	Q701	E-1	RV301	K-5	TP152	K-6
		LV702	L-1	Q705	F-2	RV302	H-5	TP301	H-7
		LV703	C-1	Q706	E-1	RV303	H-3	TP302	H-6
D2	D-3	LV704	B-1	Q707	F-2	RV304	J-3	TP303	G-5
D5	C-3	LV705	K-1	Q708	F-1	RV351	G-4	TP351	G-6
D7	L-5	LV706	J-1	Q709	G-1	RV352	G-3	TP352	H-6
D8	F-5			Q710	G-1	RV353	F-3	TP601	A-7
D9	C-2	L1	F-1	Q711	G-1	RV354	H-6	TP701	F-1
D10	M-6	L201	G-7	Q712	L-1	RV401	F-1	TP702	F-2
D51	E-5	L700	H-2	Q716	L-2	RV402	M-1	TP703	G-2
D52	D-4			Q717	L-1	RV403	D-1	TP704	G-1
D53	D-4	Q3	N-5	Q718	M-2	RV404	D-1	TP705	N-2
D54	L-7	Q4	C-2	Q719	L-1	RV405	K-1	TP706	N-3
D101	L-6	Q5	D-2	Q720	N-1	RV406	L-1	TP707	D-1
D102	K-6	Q6	C-3	Q721	N-1	RV604	B-3	TP708	B-2
D103	J-6	Q7	M-3	Q722	M-1			TP709	B-1
D104	K-7	Q8	M-3	Q723	C-1	X301	A-2	TP710	K-1
D151	J-3	Q51	D-6	Q724	C-1			TP711	H-2
D201	D-3	Q52	D-5	Q725	D-1			TP712	H-1
D202	D-3	Q53	D-7	Q726	G-1			TP722	N-1
D204	M-4	Q54	E-6	Q727	D-1			TP723	M-1
D205	D-2	Q55	E-7	Q728	D-2			TP724	D-1
D206	N-6	Q56	K-6	Q729	C-1				
D207	M-7	Q101	J-6	Q730	C-2				
D251	D-6	Q102	J-6	Q731	C-1				
D301	G-5	Q103	K-6	Q732	J-1				
D302	F-5	Q105	J-6	Q733	K-2				
D303	H-5	Q106	H-4	Q734	K-1				
D351	H-3	Q151	J-4	Q735	K-1				
D401	J-3	Q152	L-4	Q736	K-1				
D451	F-3	Q153	K-4	Q737	K-2				
D501	F-6	Q154	K-4	Q724	C-1				
D504	E-4	Q201	N-6	Q725	D-1				
D505	E-4	Q202	D-2	Q726	G-1				
D506	F-6	Q203	D-2	Q727	D-1				
D507	F-6	Q204	D-3	Q728	D-2				
D508	F-3	Q206	N-3	Q729	C-1				
D701	F-1	Q207	N-3	Q730	C-2				
D702	M-1	Q208	N-6	Q731	C-1				
D703	H-1	Q209	N-7	Q732	J-1				
D704	A-1	Q251	E-6	Q733	K-2				
		Q252	D-6	Q734	K-1				
IC1	G-6	Q301	H-6	Q735	K-1				
IC2	L-4	Q302	H-6	Q736	K-1				
IC3	M-7	Q303	G-6	Q737	K-2				

AU-124 (1-629-553-11) S

E1	M-5
E151	H-7
E201	M-7
E501	M-3
E502	F-7
E601	A-4
E602	A-7
E701	G-2
E702	N-2
E704	K-2
E705	D-2
E706	H-2
E707	E-2
E708	B-1
TP101	J-7
TP102	J-7
TP103	H-4
TP151	K-7
TP152	K-6
TP301	H-7
TP302	H-6
TP303	G-5
TP351	G-6
TP352	H-6
TP601	A-7
TP701	F-1
TP702	F-2
TP703	G-2
TP704	G-1
TP705	N-2
TP706	N-3
TP707	D-1
TP708	B-2
TP709	B-1
TP710	K-1
TP711	H-2
TP712	H-1
TP722	N-1
TP723	M-1
TP724	D-1



AU-124

—COMPONENT SIDE—
1-629-553-11
VO-9850
VO-9850P

15-73



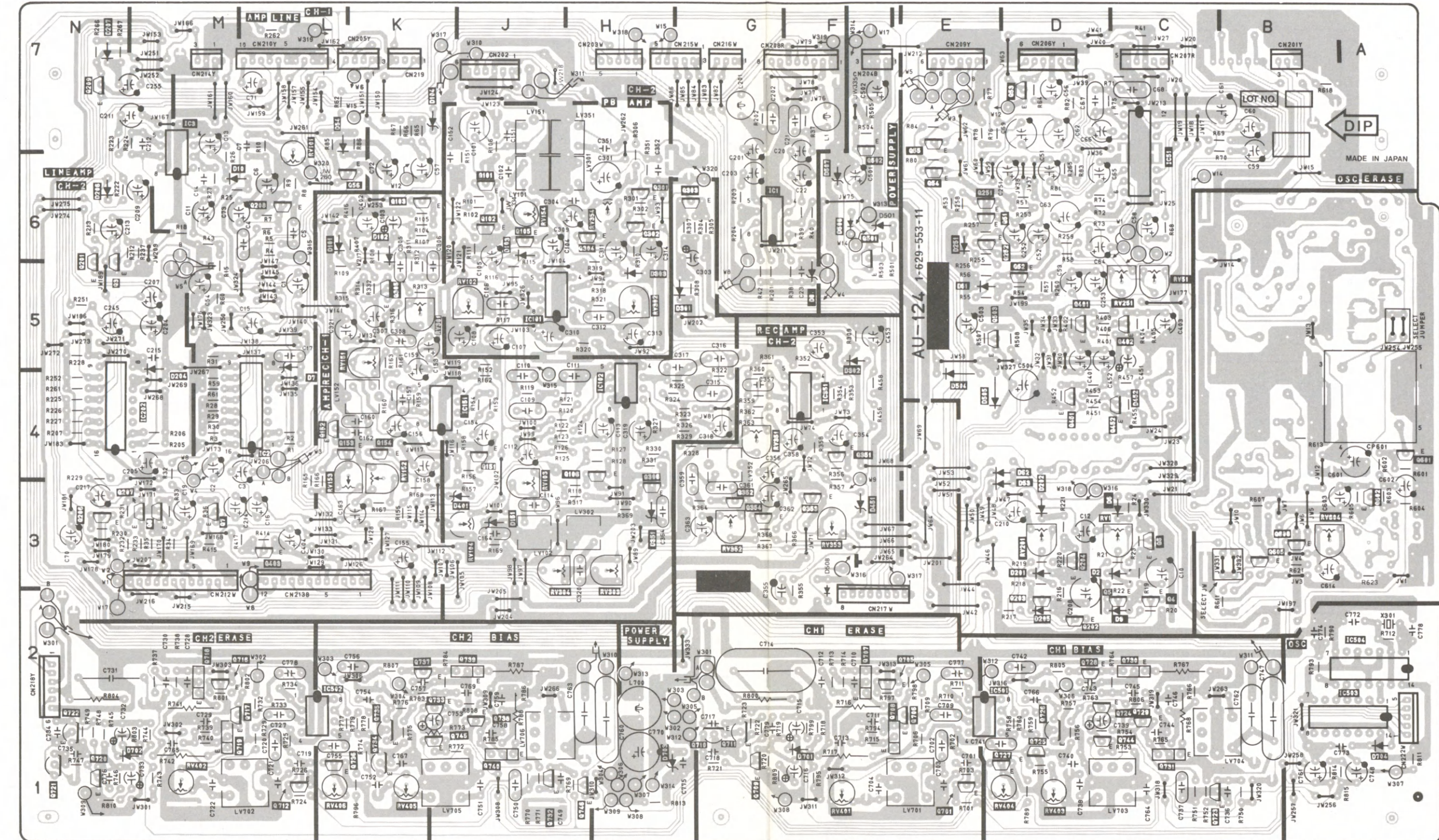
AU-124 (2/2): ERASE/BIAS OSCILLATOR

AU-124 (1-629-553-11) C

CN201	B-7	IC51	C-7	Q304	H-6	Q738	J-1
CN202	J-7	IC101	J-5	Q305	K-5	Q739	J-1
CN203	H-7	IC102	H-4	Q306	H-4	Q740	J-1
CN204	F-7	IC151	J-4	Q351	F-4	Q744	C-1
CN205	K-7	IC202	N-4	Q352	G-3	Q745	J-1
CN206	D-7	IC351	F-4	Q353	F-3	Q746	H-1
CN207	C-7	IC501	E-2	Q354	G-3		
CN208	G-7	IC502	L-2	Q401	D-5	RV1	D-3
CN209	E-7	IC503	A-2	Q402	C-5	RV51	C-5
CN210	L-7	IC504	A-2	Q403	L-3	RV101	L-7
CN212	M-2			Q451	F-3	RV102	J-5
CN213	L-3	LV101	J-6	Q452	C-4	RV103	J-4
CN214	M-7	LV102	J-3	Q501	F-6	RV104	J-3
CN215	G-7	LV151	J-7	Q502	F-6	RV151	K-5
CN216	G-7	LV152	K-4	Q503	E-5	RV152	K-4
CN217	F-3	LV301	H-6	Q601	A-4	RV153	K-4
CN218	M-2	LV302	H-3	Q602	A-3	RV154	J-5
CN219	K-7	LV351	H-7	Q605	B-3	RV201	D-3
CN222	A-1	LV352	G-4	Q608	B-3	RV251	C-5
		LV701	E-1	Q701	E-1	RV301	K-5
		LV702	L-1	Q705	F-2	RV302	H-5
		LV703	C-1	Q706	E-1	RV303	H-3
CP601	A-4	LV704	B-1	Q707	F-2	RV304	J-3
D2	D-3	LV705	K-1	Q708	F-1	RV351	G-4
D5	C-3	LV706	J-1	Q709	G-1	RV352	G-3
D7	L-5			Q710	G-1	RV353	F-3
D8	F-5			Q711	G-1	RV354	H-6
D9	C-2	L1	F-1	Q712	L-1	RV401	F-1
D10	M-6	L201	G-7	Q716	L-2	RV402	M-1
D51	E-5	L700	H-2	Q717	L-1	RV403	D-1
D52	D-4			Q718	M-2	RV404	D-1
D53	D-4	Q3	N-5	Q719	L-1	RV405	K-1
D54	L-7	Q4	C-2	Q720	N-1	RV406	L-1
D101	L-6	Q5	D-2	Q721	N-1	RV604	B-3
D102	K-6	Q6	C-3	Q722	M-1		
D103	J-6	Q7	M-3	Q723	C-1	X301	A-2
D104	K-7	Q8	M-3	Q724	C-1		
D151	J-3	Q51	D-6	Q725	D-1		
D201	D-3	Q52	D-5	Q726	G-1		
D202	D-3	Q53	D-7	Q727	D-1		
D204	M-4	Q54	E-6	Q728	D-2		
D205	D-2	Q55	E-7	Q729	C-1		
D206	N-6	Q56	K-6	Q730	C-2		
D207	M-7	Q101	J-6	Q731	C-1		
D251	D-6	Q102	J-6	Q732	J-1		
D301	G-5	Q103	K-6	Q733	K-2		
D302	F-5	Q105	J-6	Q734	K-1		
D303	H-5	Q106	H-4	Q735	K-1		
D351	H-3	Q151	J-4	Q736	K-1		
D401	J-3	Q152	L-4	Q737	K-2		
D451	F-3	Q153	K-4	Q724	C-1		
D501	F-6	Q154	K-4	Q725	D-1		
D504	E-4	Q201	N-6	Q726	G-1		
D505	E-4	Q202	D-2	Q727	D-1		
D506	F-6	Q203	D-2	Q728	D-2		
D507	F-6	Q204	D-3	Q729	C-1		
D508	F-3	Q206	N-3	Q730	C-2		
D701	F-1	Q207	N-3	Q731	C-1		
D702	M-1	Q208	N-6	Q732	J-1		
D703	H-1	Q209	N-7	Q733	K-2		
D704	A-1	Q251	E-6	Q734	K-1		
		Q252	D-6	Q735	K-1		
IC1	G-6	Q301	H-6	Q736	K-1		
IC2	L-4	Q302	H-6	Q737	K-2		
IC3	M-7	Q303	G-6				

AU-124 (1-629-553-11) S

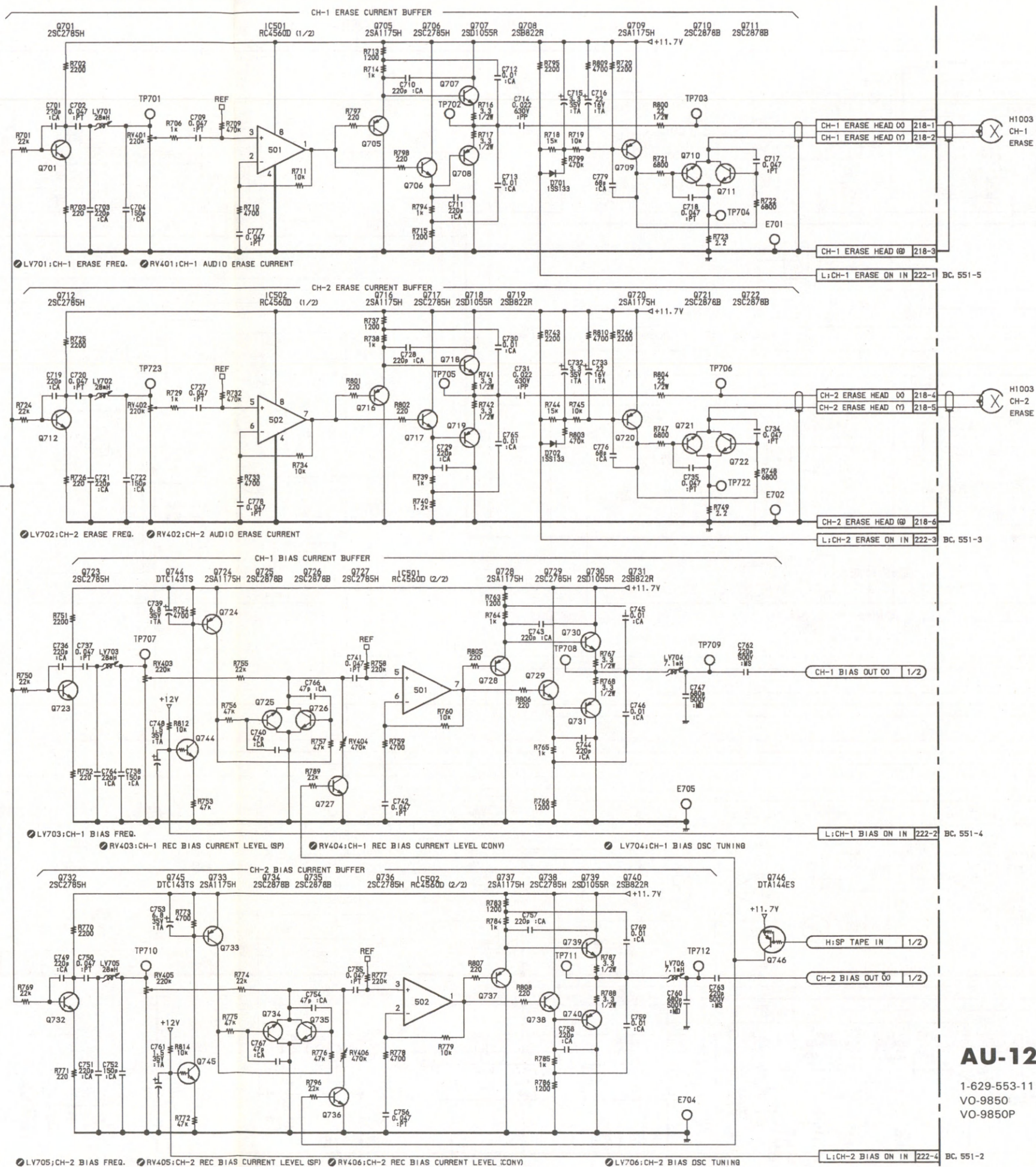
E1	M-5
E151	H-7
E201	M-7
E501	M-3
E502	F-7
E601	A-4
E602	A-7
E701	G-2
E702	N-2
E704	K-2
E705	D-2
E706	H-2
E707	E-2
E708	B-1
TP101	J-7
TP102	J-7
TP103	H-4
TP151	K-7
TP152	K-6
TP301	H-7
TP302	H-6
TP303	G-5
TP351	G-6
TP352	H-6
TP601	A-7
TP701	F-1
TP702	F-2
TP703	G-2
TP704	G-1
TP705	N-2
TP706	N-3
TP707	D-1
TP708	B-2
TP709	B-1
TP710	K-1
TP711	H-2
TP712	H-1
TP722	N-1
TP723	M-1
TP724	D-1

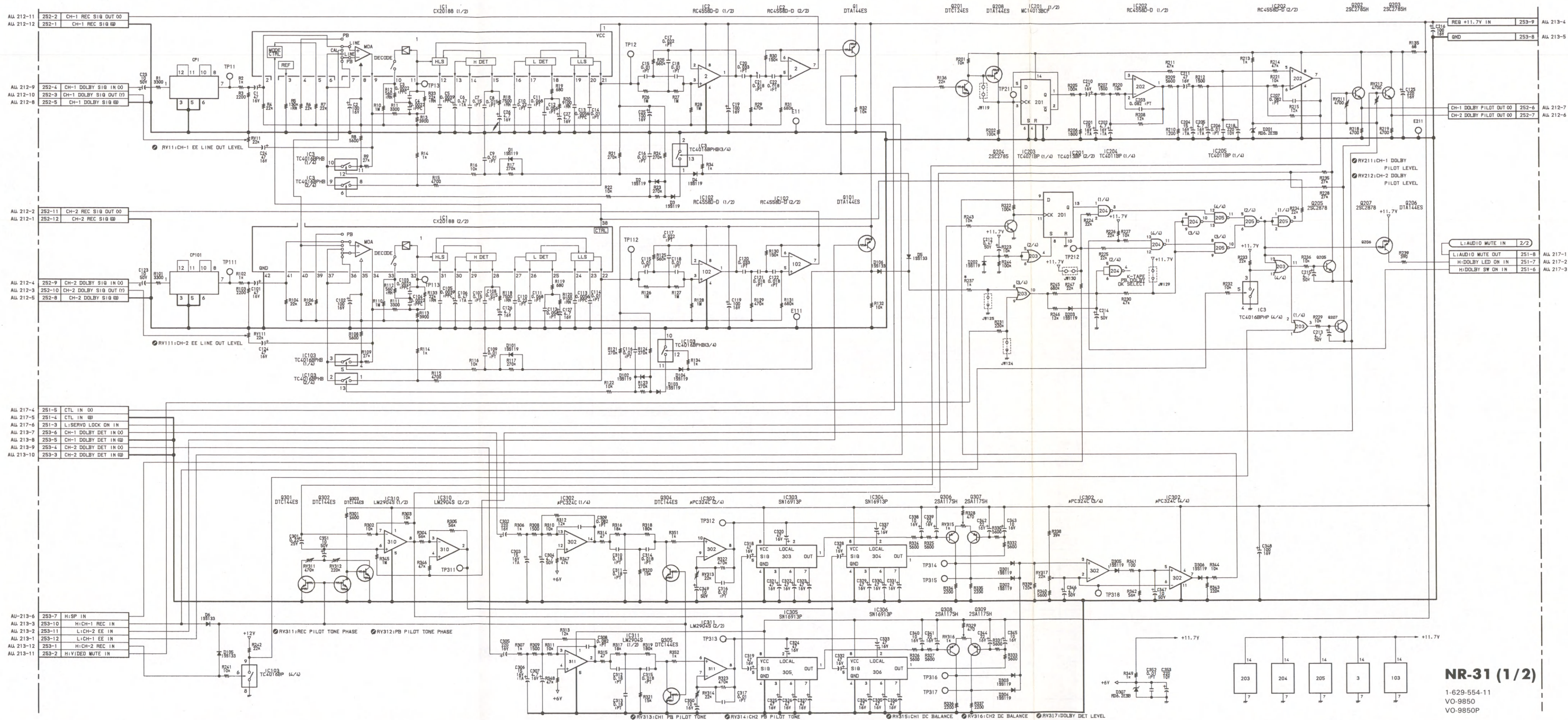


AU-124

— COMPONENT SIDE —
 1-629-553-11
 VO-9850
 VO-9850P

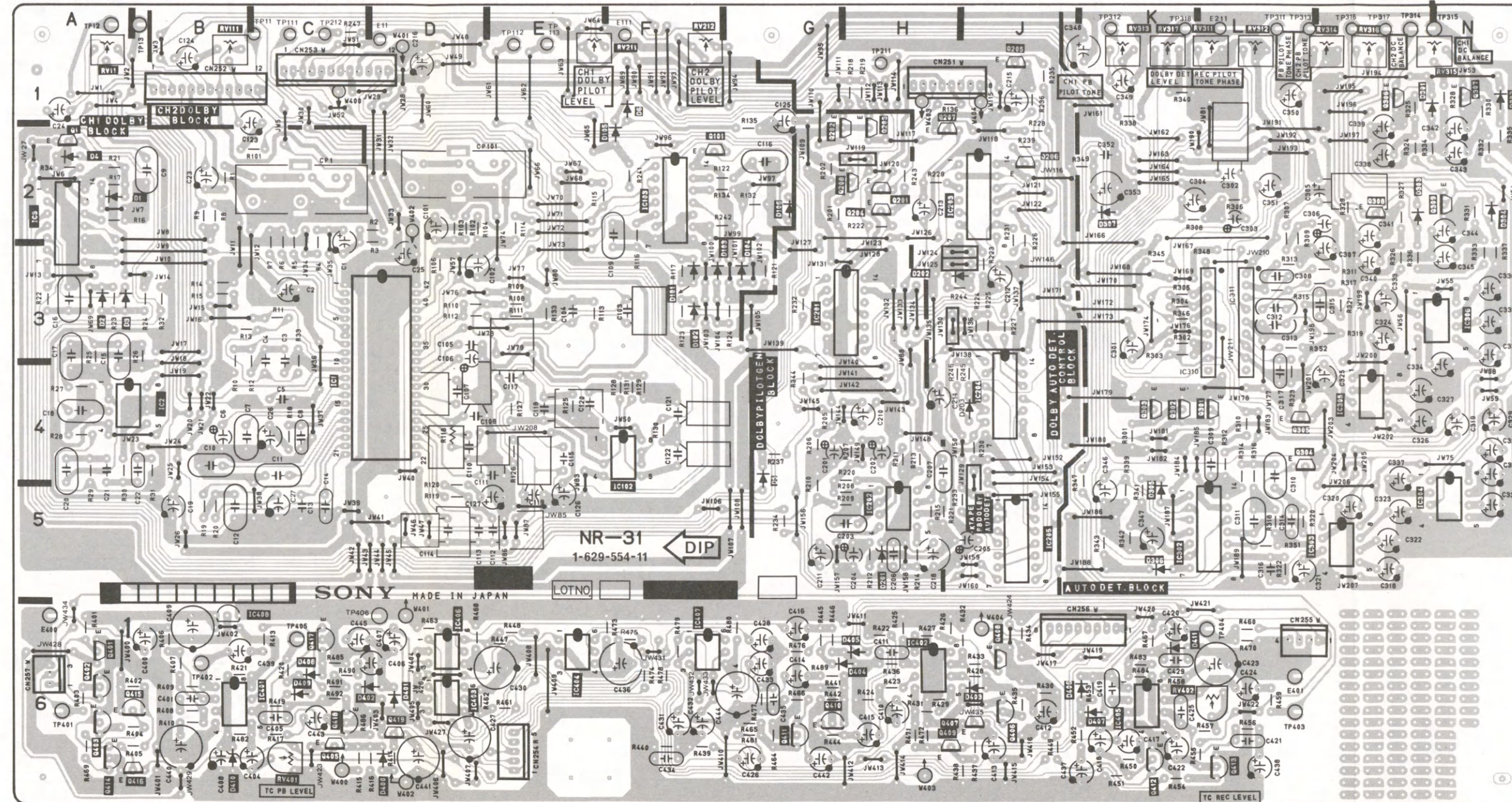
1-629-553-11
VO-9850
VO-9850P





NR-31 (1-629-554-11) S

D6	F-1
E11	D-1
E111	F-1
E211	L-1
E400	A-6
E401	L-6



—COMPONENT SIDE—
1-629-554-11
VO-9850
VO-9850P

NR-31 (2/2): TC REC/PB AMPLIFIER

NR-31 (1-629-554-11) C

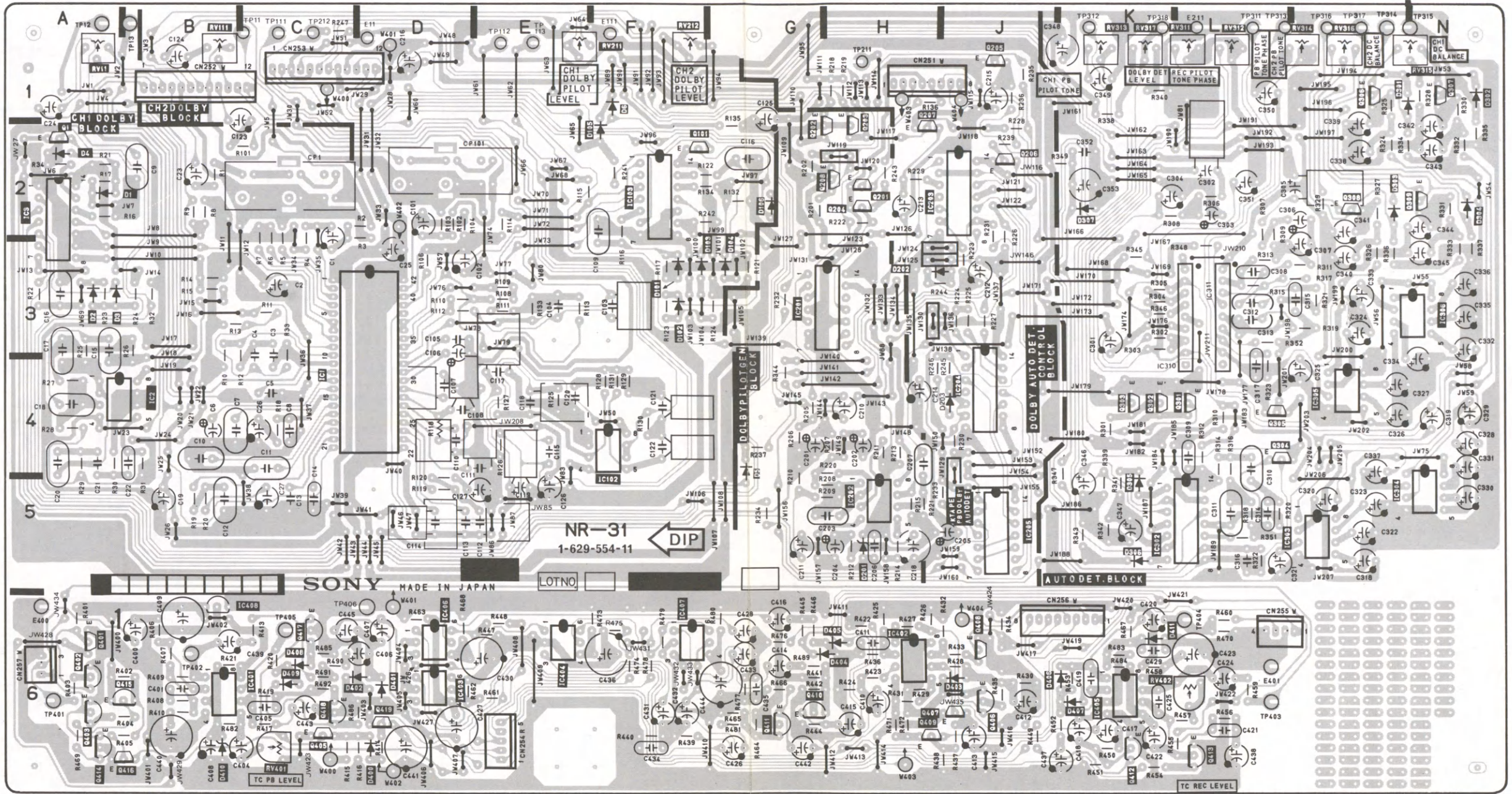
CN251	H-1	IC403	D-6
CN252	B-1	IC404	E-6
CN253	C-1	IC405	K-6
CN254	E-6	IC406	D-6
CN255	L-6	IC407	F-6
CN256	J-6	IC408	C-6
CN257	A-6		

CP1	C-2	Q1	A-2
CP101	D-2	Q101	F-2
		Q201	H-2
		Q202	G-2
D1	B-2	Q203	H-2
D2	A-3	Q204	H-2
D3	A-3	Q205	J-1
D4	A-2	Q206	J-2
D5	G-4	Q207	H-1
D101	F-3	Q208	H-2
D102	F-3	Q301	L-4
D103	F-3	Q302	K-4
D104	G-3	Q303	K-4
D105	E-2	Q304	L-4
D106	G-2	Q305	L-4
D201	H-5	Q306	M-1
D202	H-3	Q307	M-1
D203	J-4	Q308	M-2
D301	M-1	Q309	N-2
D302	N-1	Q401	A-6
D303	M-2	Q402	A-6
D304	N-2	Q403	A-6
D305	K-5	Q405	C-6
D306	K-5	Q406	J-6
D307	K-2	Q407	H-6
D400	D-6	Q408	J-6
D401	D-6	Q409	H-6
D402	D-6	Q410	C-6
D403	J-6	Q411	G-6
D404	H-6	Q412	K-6
D405	H-6	Q413	L-6
D406	J-6	Q414	A-6
D407	K-6	Q415	B-6
D408	C-6	Q416	B-6
D409	C-6	Q417	C-6
D410	B-6	Q418	G-6
D411	K-6	Q419	D-6

IC1	C-4	RV11	A-1
IC2	B-4	RV111	B-1
IC3	A-2	RV211	F-1
IC102	F-4	RV212	F-1
IC103	F-2	RV311	L-1
IC201	G-3	RV312	L-1
IC202	H-5	RV313	K-1
IC203	H-2	RV314	M-1
IC204	J-4	RV315	N-1
IC205	J-5	RV316	M-1
IC302	K-5	RV317	K-1
IC303	L-5	RV401	C-6
IC304	M-5	RV402	K-6
IC305	M-4		
IC306	N-3		
IC310	K-3		
IC311	L-3		
IC401	C-6		
IC402	H-6		

NR-31 (1-629-554-11) S

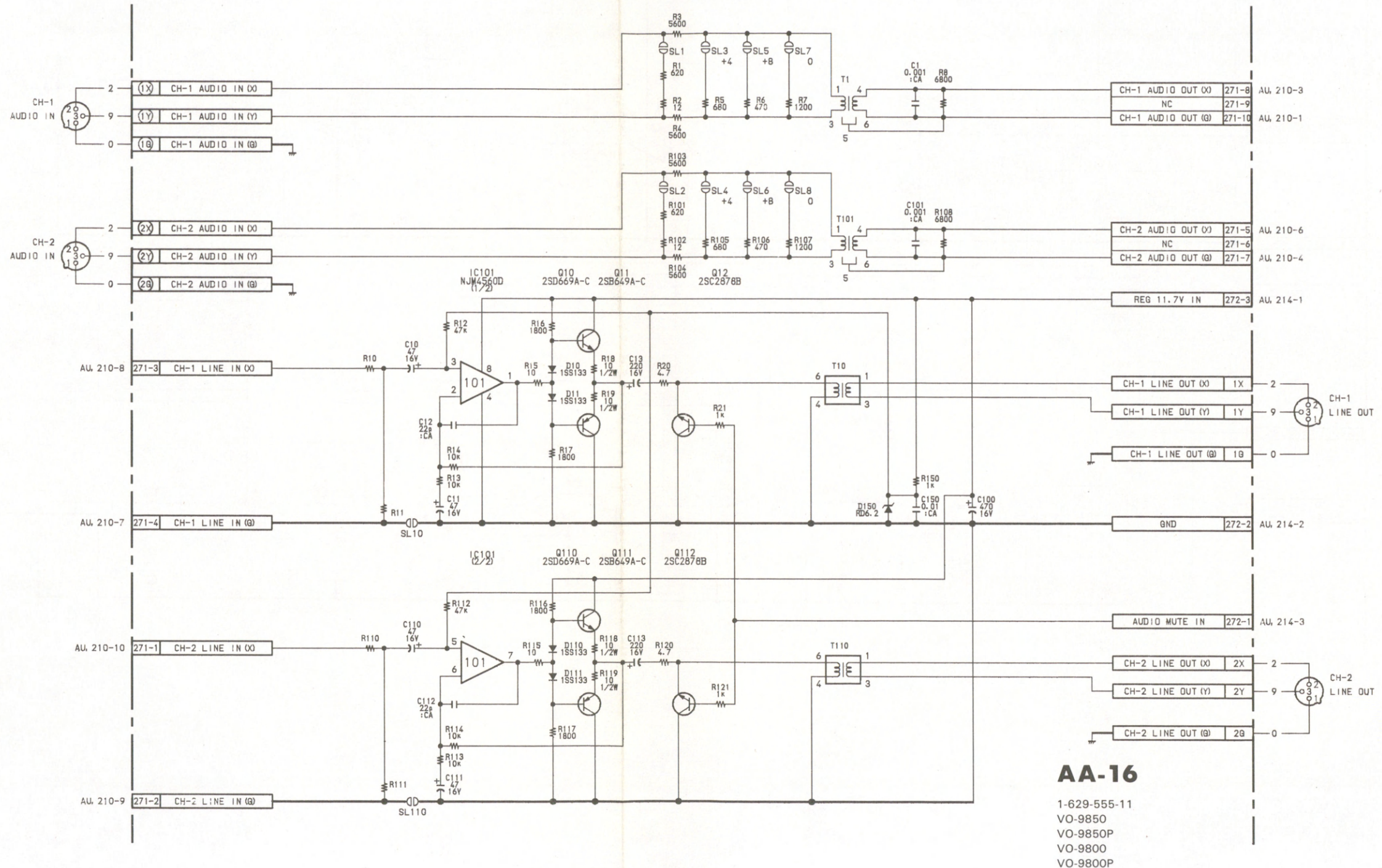
D6	F-1
E11	D-1
E111	F-1
E211	L-1
E400	A-6
E401	L-6



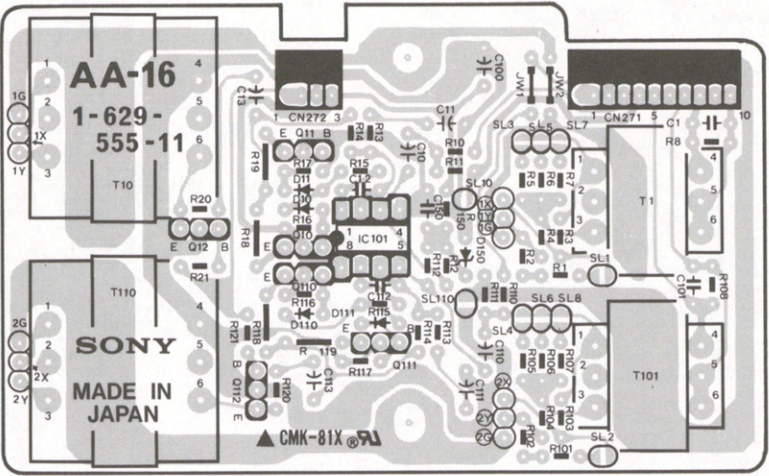
NR-31

— COMPONENT SIDE —
1-629-554-11
VO-9850
VO-9850P

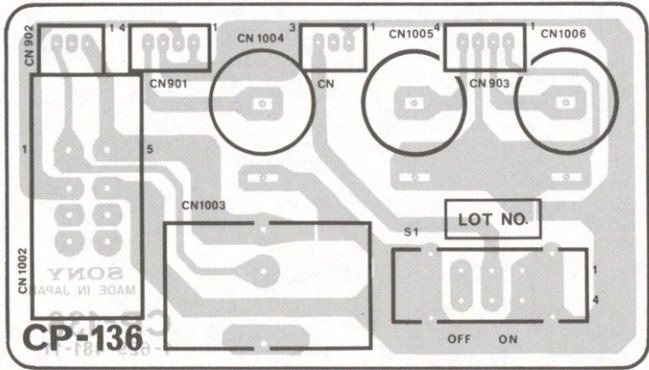
AA-16: CONNECTOR



AA-16: CONNECTOR
CP-136: MONITOR OUT



AA-16
—COMPONENT SIDE—
1-629-555-11
VO-9850
VO-9850P
VO-9800
VO-9800P



CP-136
—COMPONENT SIDE—
1-629-481-11
VO-9850
VO-9850P
VO-9800
VO-9800P

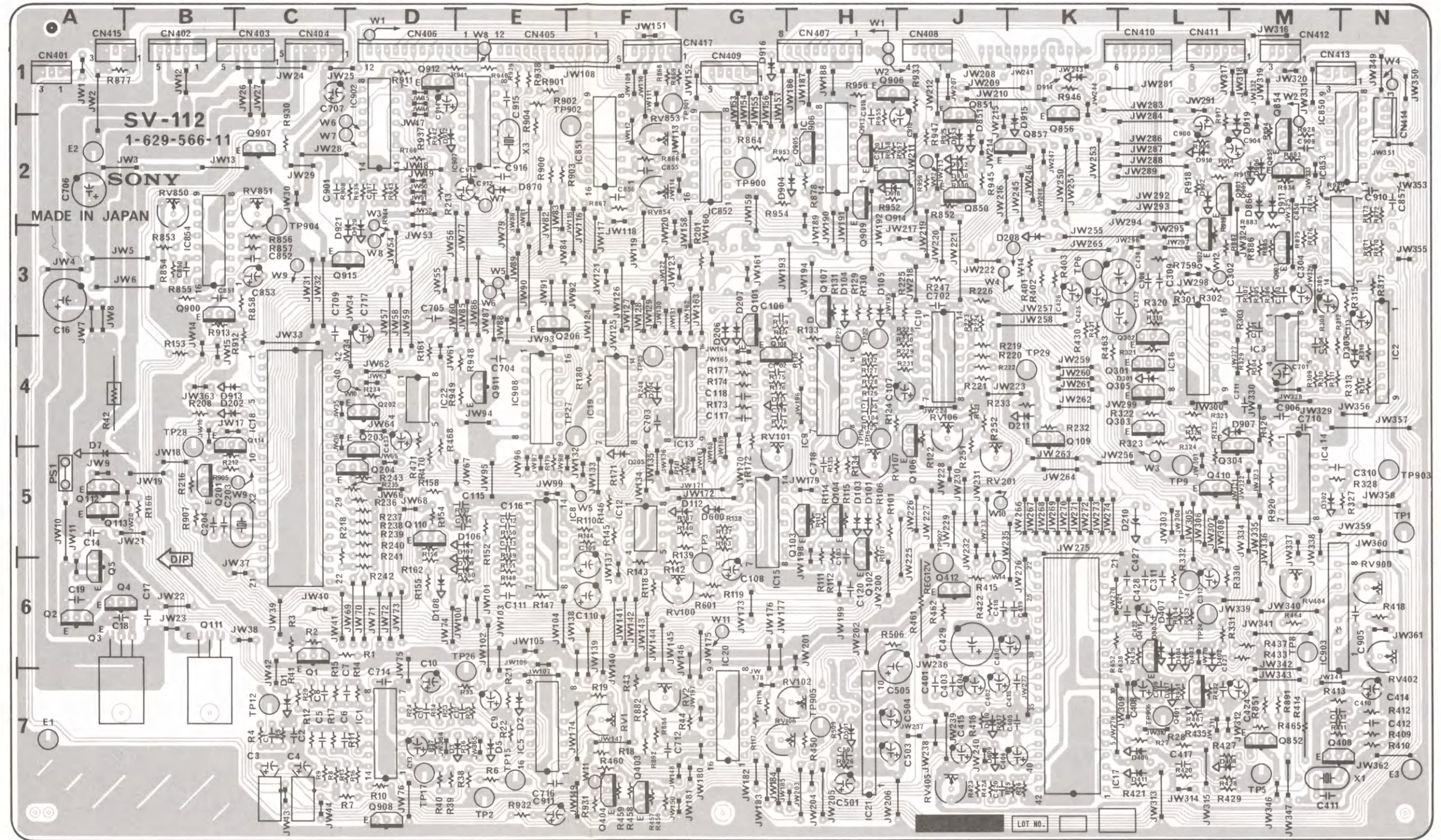
SV-112 (1/2): DRUM/CAPSTAN SERVO

SV-112 (1-629-566-11) C

CN401	A-1	D906	M-2
CN402	B-1	D907	M-4
CN403	C-1	D910	L-2
CN404	C-1	D911	M-2
CN405	E-1	D912	D-2
CN406	D-1	D913	B-4
CN407	H-1	D914	K-1
CN408	J-1	D915	K-2
CN409	G-1	D916	G-1
CN410	L-1	D917	L-7
CN411	L-1	D918	H-2
CN412	M-1	D919	M-2
CN413	M-1	D920	D-2
CN414	N-2	D921	C-2
CN415	A-1		
CN417	G-1		

D1	C-7	IC3	M-4
D2	E-7	IC4	M-5
D3	D-7	IC5	E-7
D5	E-7	IC8	F-5
D7	A-4	IC9	H-4
D101	H-5	IC10	J-4
D103	H-5	IC12	F-5
D104	H-3	IC13	G-4
D105	H-3	IC15	G-6
D106	E-5	IC16	L-4
D107	E-5	IC17	K-7
D108	D-6	IC18	C-4
D109	E-5	IC19	F-4
D112	G-5	IC20	G-6
D113	G-4	IC21	H-7
D202	B-4	IC22	D-4
D204	F-4	IC850	M-1
D205	F-5	IC851	F-2
D206	G-3	IC852	G-2
D207	G-3	IC853	M-2
D208	K-3	IC854	B-3
D210	L-5	IC902	D-1
D211	K-4	IC903	M-6
D301	L-4	IC906	H-2
D302	M-5	IC907	E-2
D303	N-4	IC908	E-4

D402	L-6		
D403	L-6	Q1	C-7
D404	L-6	Q2	A-6
D406	L-7	Q3	A-6
D407	L-6	Q4	A-6
D408	L-7	Q5	A-6
D409	J-7	Q101	G-3
D410	J-7	Q102	H-6
D411	L-7	Q103	H-5
D501	H-7	Q104	H-5
D600	G-5	Q106	J-5
D850	J-2	Q107	H-3
D851	J-2	Q108	G-4
D852	J-2	Q109	K-4
D853	J-2	Q110	D-5
D866	M-2	Q111	B-6
D870	E-2	Q112	A-5
D902	L-2	Q113	A-5
D903	L-6	Q114	C-4
D904	G-2	Q201	B-5
D905	M-2	Q202	D-4



Q203	D-4	Q408	M-7	Q900	B-3	Q913	H-2	RV201	J-5	X1	N-7
Q204	D-5	Q410	L-5	Q901	M-2	Q914	H-2	RV402	N-7	X2	C-5
Q206	F-3	Q411	L-6	Q902	L-3	Q915	H-2	RV404	M-6	X3	E-2
Q301	L-4	Q412	J-6	Q903	M-3			RV405	J-7		
Q302	L-4	Q850	J-2	Q905	H-2	RV1	F-7	RV406	G-7		
Q303	L-4	Q851	J-1	Q906	H-1	RV2	G-7	RV850	B-2		
Q304	L-5	Q852	M-7	Q907	C-2	RV100	F-6	RV851	C-2		
Q305	L-4	Q854	M-1	Q908	D-7	RV101	G-4	RV853	F-2		
Q401	L-7	Q855	M-2	Q909	H-3	RV102	H-7	RV854	F-2		
Q403	F-7	Q856	K-2	Q911	E-4	RV106	J-4	RV900	N-6		
Q404	F-4	Q857	K-2	Q912	D-1	RV107	H-5				

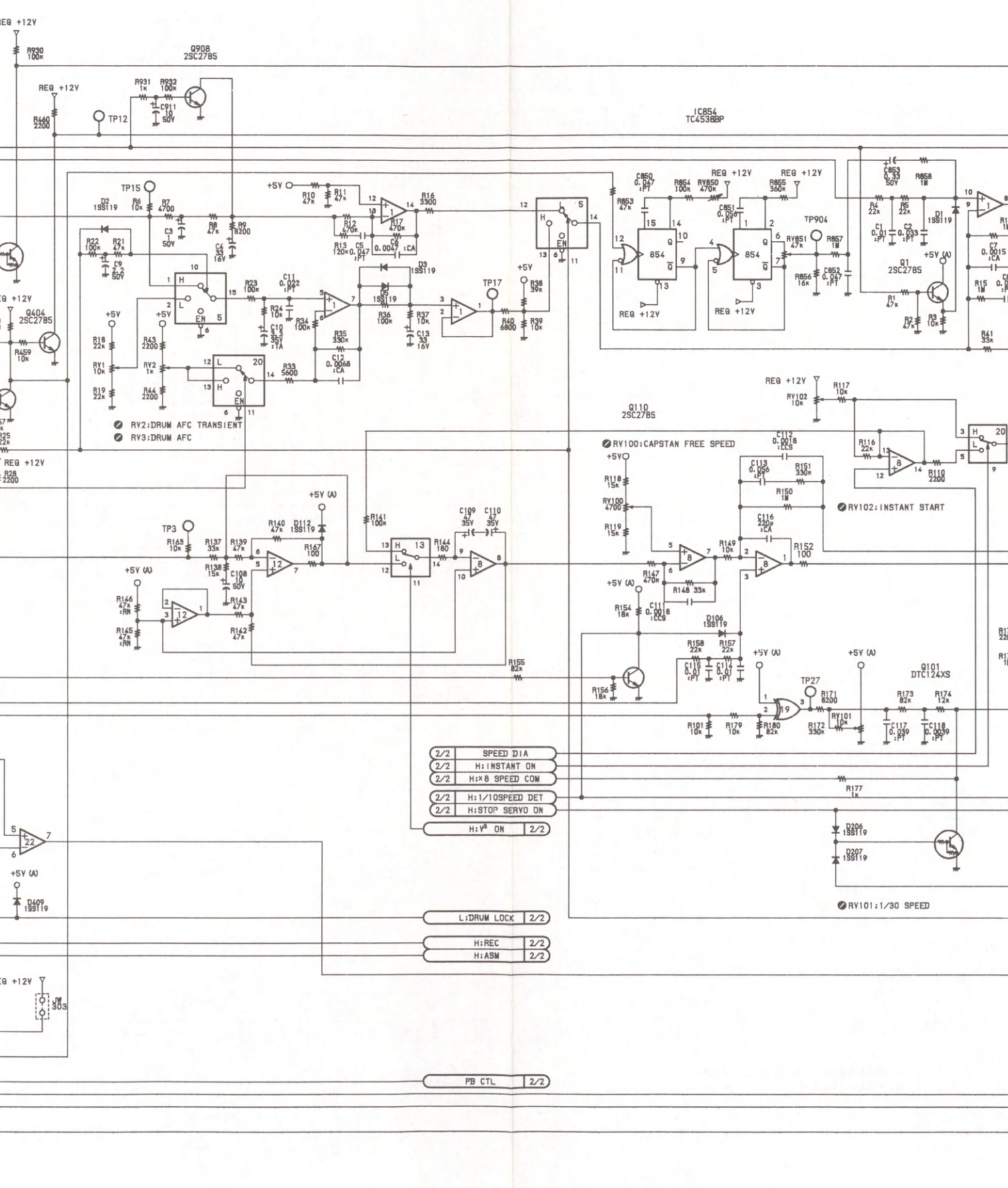
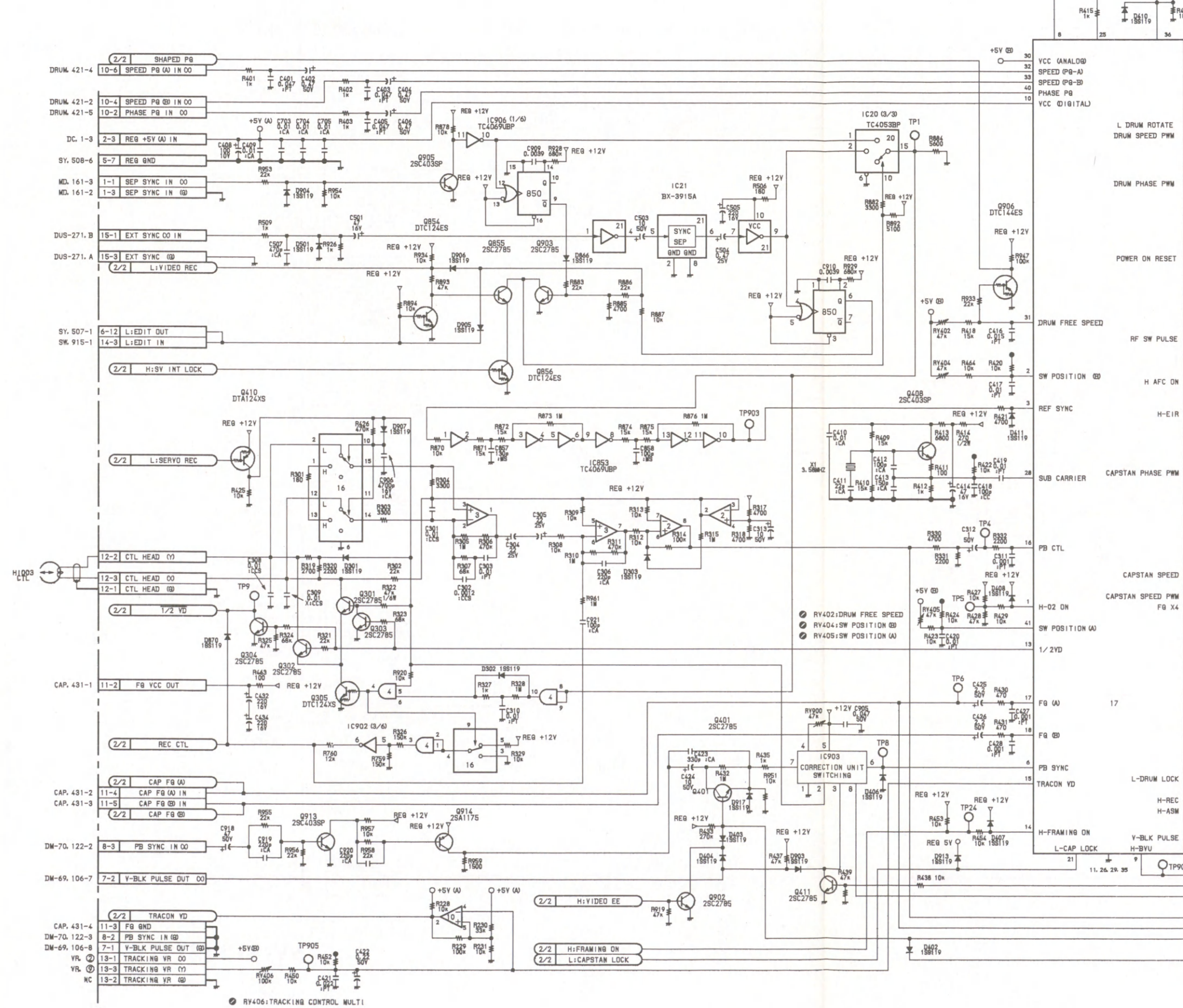
SV-112 (1-629-566-11) S

E1	A-7
E2	A-2
E3	N-7

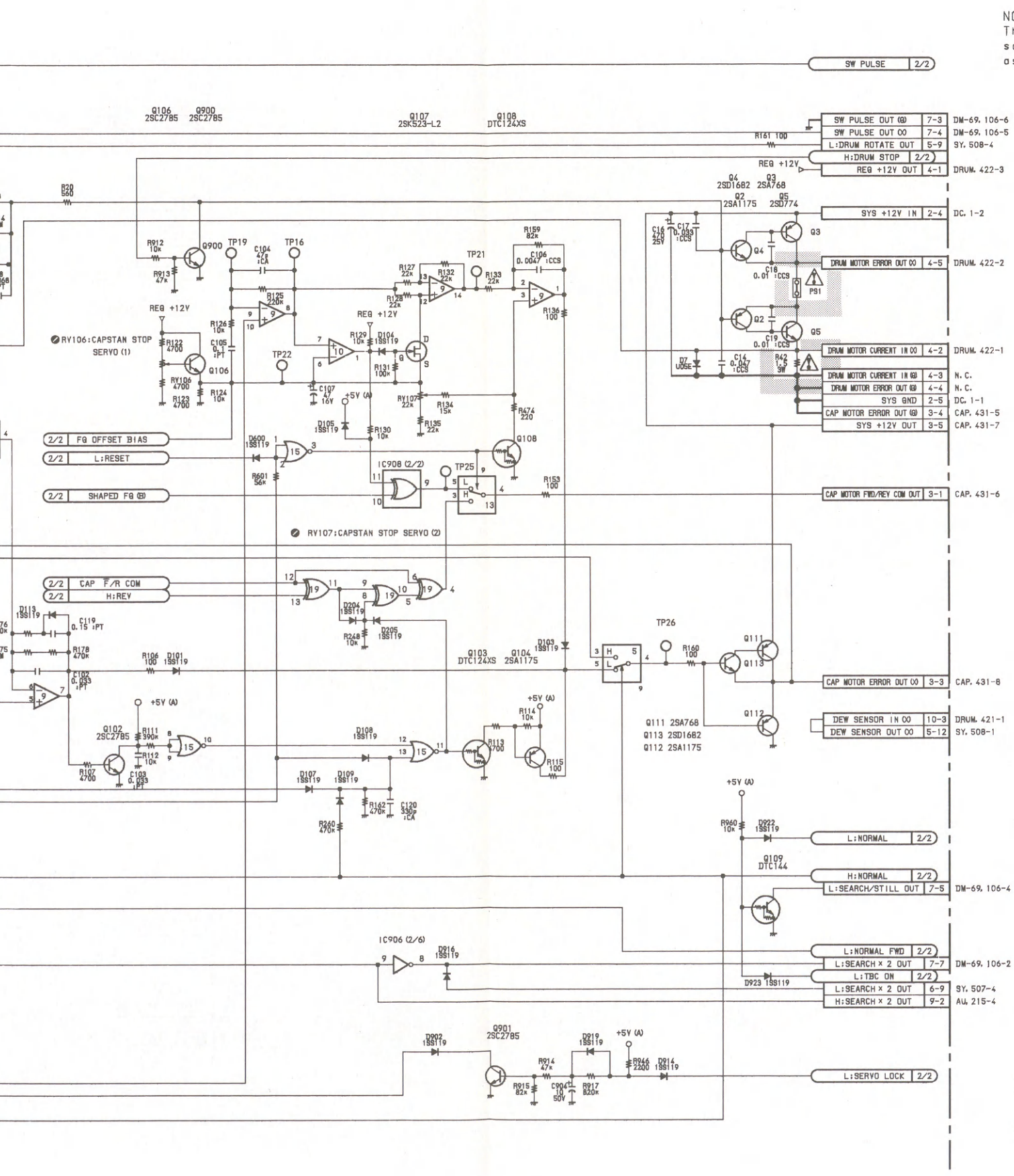
SV-112

—COMPONENT SIDE—
1-629-566-11
VO-9850

SV-112 (1/2): DRUM/CAPSTAN SERVO



SV-112 (1/2)



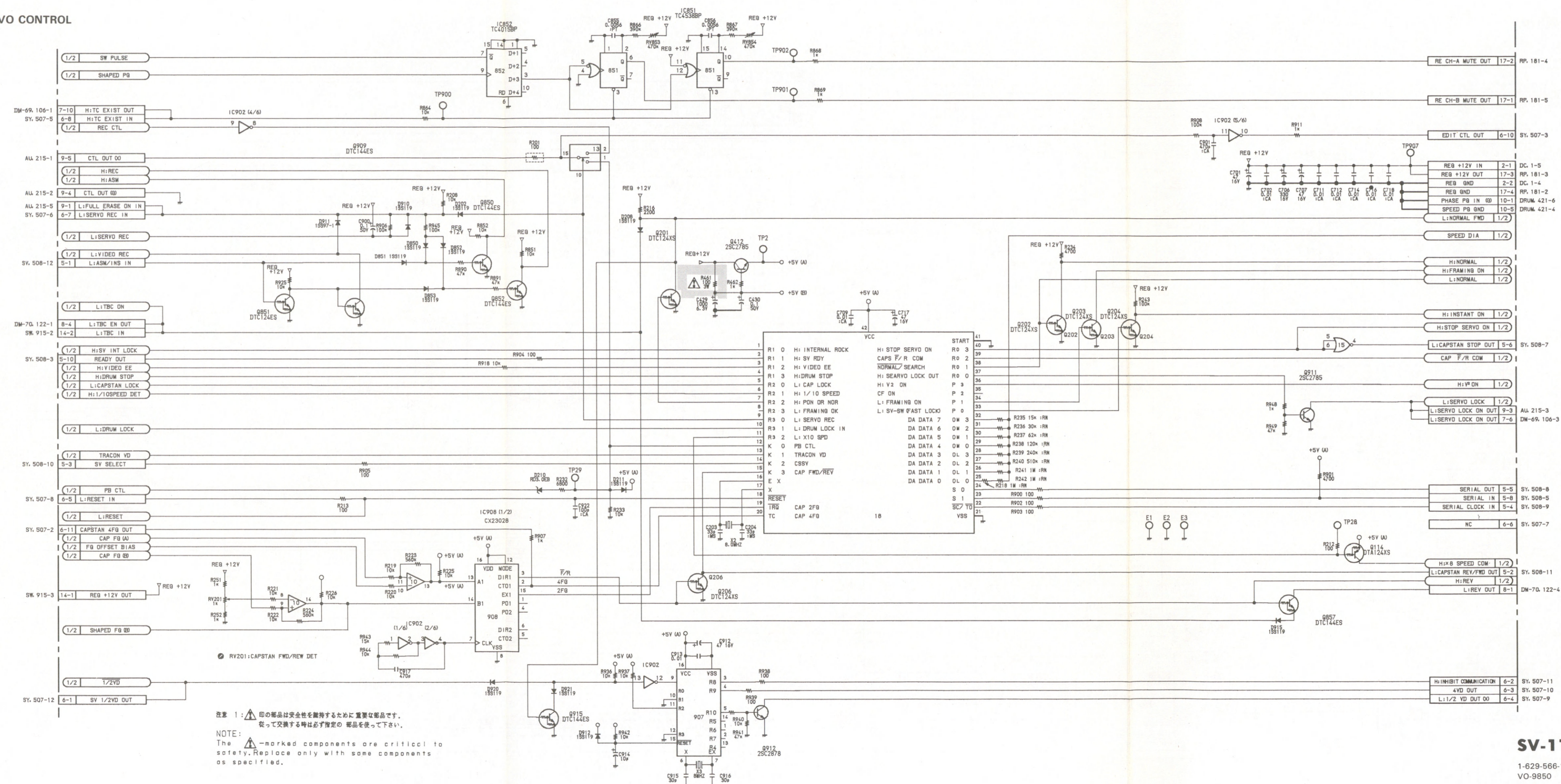
SV-112 (1/2)

1-629-566-11
VO-9850

注意 1: 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

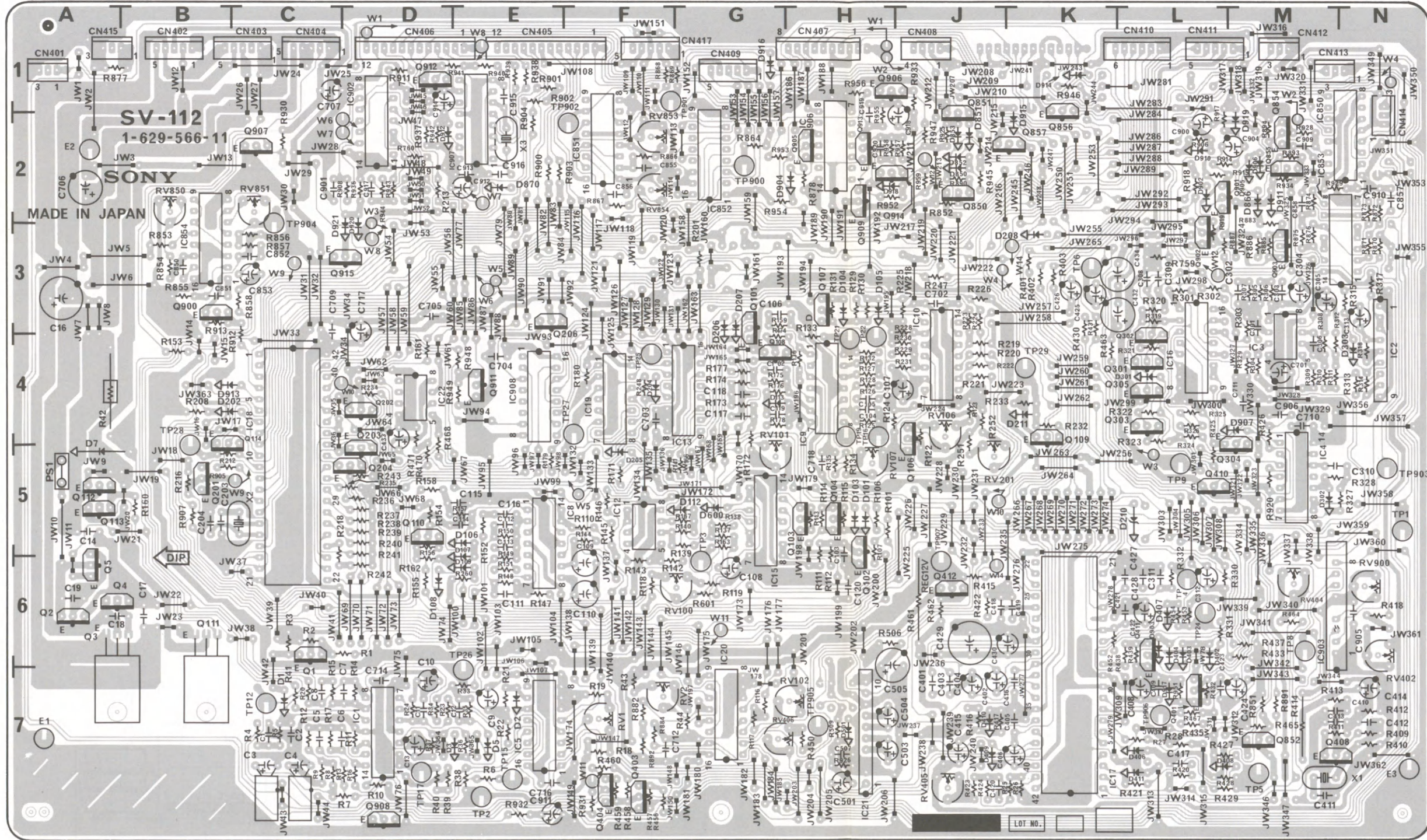
NOTE:
The -marked components are critical to safety. Replace only with some components as specified.

SV-112 (2/2): SERVO CONTROL



SV-112 (2/2)

1-629-566-11
VO-9850



SV-112

—COMPONENT SIDE—
1-629-566-11
VO-9850

SV-112 (1-629-566-11) C

CN401	A-1	D906	M-2	Q203	D-4
CN402	B-1	D907	M-4	Q204	D-5
CN403	C-1	D910	L-2	Q206	F-3
CN404	C-1	D911	M-2	Q301	L-4
CN405	E-1	D912	D-2	Q302	L-4
CN406	D-1	D913	B-4	Q303	L-4
CN407	H-1	D914	K-1	Q304	L-5
CN408	J-1	D915	K-2	Q305	L-4
CN409	G-1	D916	G-1	Q401	L-7
CN410	L-1	D917	L-7	Q403	F-7
CN411	L-1	D918	H-2	Q404	F-4
CN412	M-1	D919	M-2	Q408	M-7
CN413	M-1	D920	D-2	Q410	L-5
CN414	N-2	D921	C-2	Q411	L-6
CN415	A-1			Q412	J-6
CN417	G-1	IC1	D-7	Q850	J-2

D1	C-7	IC3	M-4	Q852	M-7
D2	E-7	IC4	M-5	Q854	M-1
D3	D-7	IC5	E-7	Q855	M-2
D5	E-7	IC8	F-5	Q856	K-2
D7	A-4	IC9	H-4	Q857	K-2
D101	H-5	IC10	J-4	Q900	B-3
D103	H-5	IC12	F-5	Q901	M-2
D104	H-3	IC13	G-4	Q902	L-3
D105	H-3	IC15	G-6	Q903	M-3
D106	E-5	IC16	L-4	Q905	H-2
D107	E-5	IC17	K-7	Q906	H-1
D108	D-6	IC18	C-4	Q907	C-2
D109	E-5	IC19	F-4	Q908	D-7
D112	G-5	IC20	G-6	Q909	H-3
D113	G-4	IC21	H-7	Q911	E-4
D202	B-4	IC22	D-4	Q912	D-1
D204	F-4	IC850	M-1	Q913	H-2
D205	F-5	IC851	F-2	Q914	H-2
D206	G-3	IC852	G-2	Q915	H-2
D207	G-3	IC853	M-2		
D208	K-3	IC854	B-3	RV1	F-7
D210	L-5	IC902	D-1	RV2	G-7
D211	K-4	IC903	M-6	RV100	F-6
D301	L-4	IC906	H-2	RV101	G-4
D302	M-5	IC907	E-2	RV102	H-7
D303	N-4	IC908	E-4	RV106	J-4
D402	L-6			RV107	H-5
D403	L-6	Q1	C-7	RV201	J-5
D404	L-6	Q2	A-6	RV402	N-7
D406	L-7	Q3	A-6	RV404	M-6
D407	L-6	Q4	A-6	RV405	J-7
D408	L-7	Q5	A-6	RV406	G-7
D409	J-7	Q101	G-3	RV850	B-2
D410	J-7	Q102	H-6	RV851	C-2
D411	L-7	Q103	H-5	RV853	F-2
D501	H-7	Q104	H-5	RV854	F-2
D600	G-5	Q106	J-5	RV900	N-6
D850	J-2	Q107	H-3		
D851	J-2	Q108	G-4	X1	N-7
D852	J-2	Q109	K-4	X2	C-5
D853	J-2	Q110	D-5	X3	E-2
D866	M-2	Q111	B-6		
D870	E-2	Q112	A-5		
D902	L-2	Q113	A-5		
D903	L-6	Q114	C-4		
D904	G-2	Q201	B-5		
D905	M-2	Q202	D-4		

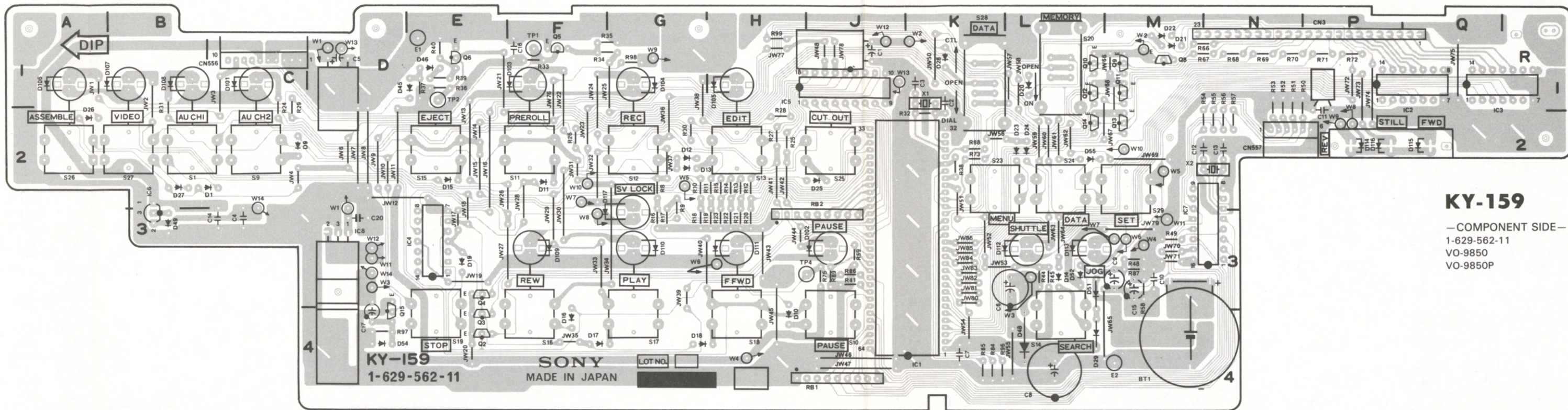
SV-112 (1-629-566-11) S

E1	A-7
E2	A-2
E3	N-7

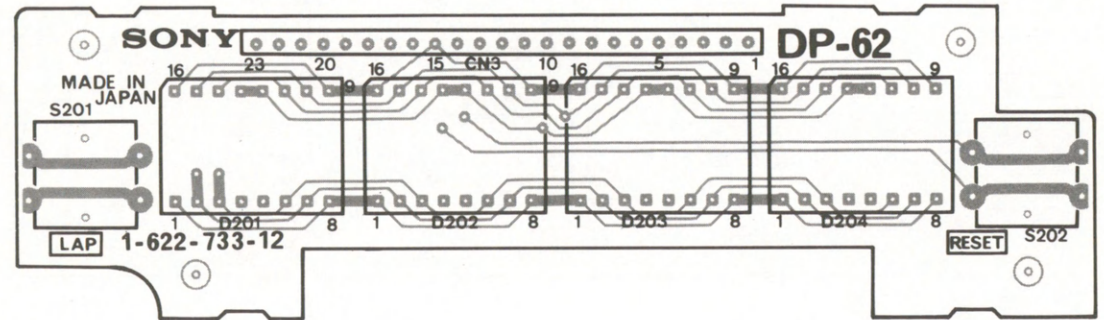
KY-159: FUNCTION KEY BOARD
DP-62: DISPLAY

KY-159 (1-629-562-11) C

CN3	P-1	IC6	B-3
CN556	C-1	IC7	M-3
CN557	N-2	IC8	D-3
D1	B-1	Q2	E-4
D9	C-2	Q3	E-4
D10	H-4	Q4	E-3
D11	F-2	Q5	F-1
D12	G-2	Q6	E-1
D13	G-2	Q8	M-1
D14	L-3	Q9	M-1
D15	E-2	Q10	L-1
D16	F-4	Q11	M-1
D17	F-4	Q12	L-1
D18	G-4	Q13	M-2
D19	E-3	Q14	L-2
D20	L-1	Q15	D-4
D21	M-1		
D22	M-1	RB1	J-4
D23	L-2	RB2	J-2
D24	L-2		
D25	J-2	S1	B-2
D26	A-2	S9	C-2
D27	B-2	S10	J-4
D28	K-1	S11	F-2
D29	L-4	S12	G-2
D45	E-1	S13	H-2
D46	E-1	S14	L-4
D48	L-4	S15	E-2
D49	B-3	S16	F-4
D51	L-3	S17	G-4
D52	L-3	S18	H-4
D54	D-4	S19	E-4
D55	L-2	S20	L-1
D101	C-1	S23	K-2
D102	J-3	S24	L-2
D103	F-1	S25	J-2
D104	G-1	S26	A-2
D105	H-1	S27	B-2
D106	A-1	S28	K-1
D107	B-1	S29	M-2
D108	B-1	S201	S-1
D109	F-3	S202	T-1
D110	G-3		
D111	H-3	TP1	F-1
D112	L-3	TP2	E-1
D113	L-3	TP4	H-3
D114	P-2		
D115	Q-2	X1	K-1
D116	P-2	X2	M-2
D117	G-3		
D201	S-1		
D202	S-1		
D203	T-1		
D204	T-1		
E1	E-1		
E2	M-4		
IC1	K-4		
IC2	Q-1		
IC3	Q-1		
IC4	E-3		
IC5	H-1		



KY-159
— COMPONENT SIDE —
1-629-562-11
VO-9850
VO-9850P



DP-62
— COMPONENT SIDE —
1-622-733-11
VO-9850
VO-9850P
VO-9800
VO-9800P

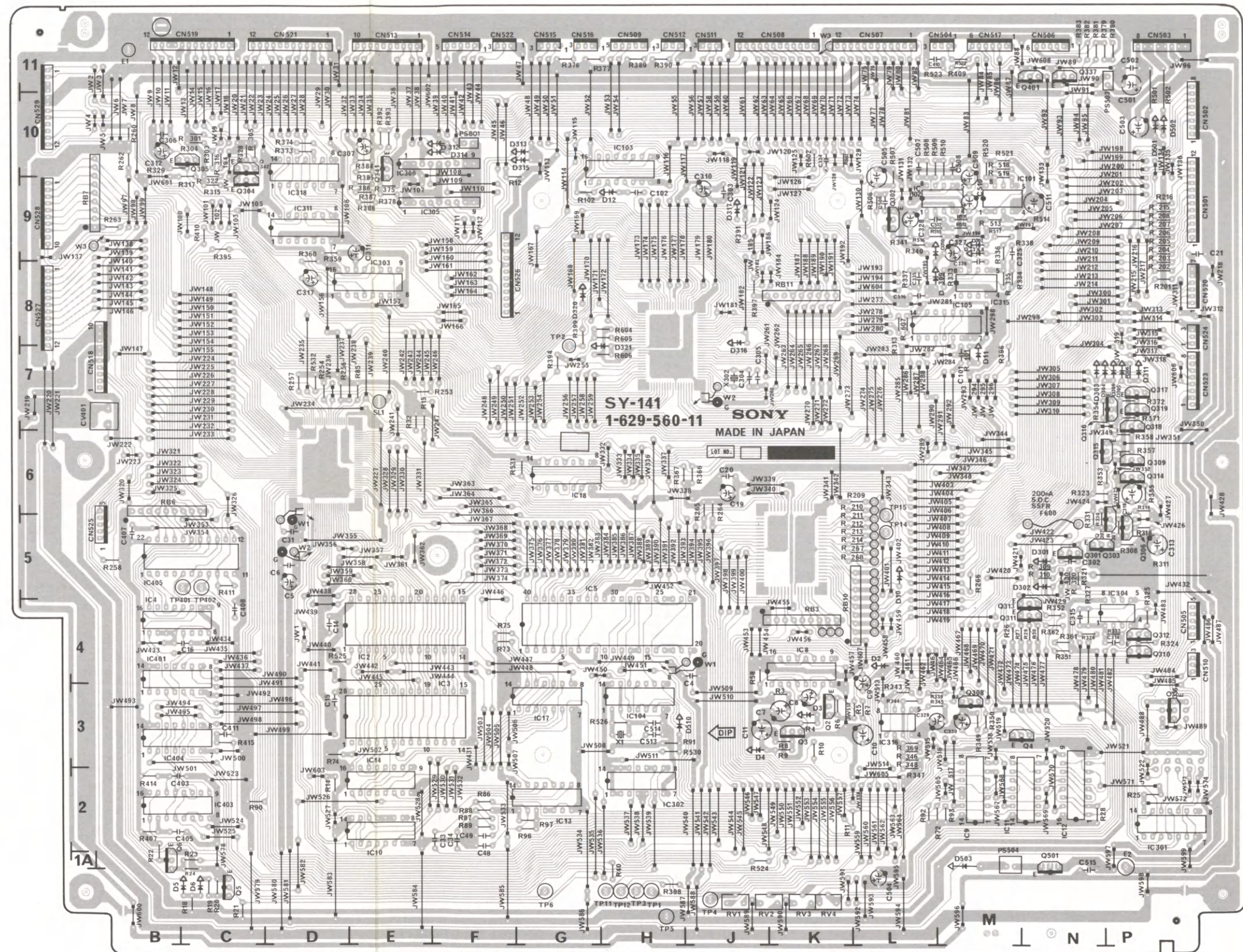
SY-141 (1/2): SYSTEM CONTROL

SY-141 (1-629-560-11) C

CN12	E-4	D510	H-3	Q337	N-11	IC1	D-6
CN501	P-9	E1	B-11	Q341	E-10	IC6	K-6
CN502	P-10	E2	P-1	Q401	N-11	IC307	H-7
CN503	P-11			Q501	N-1		
CN504	M-11	F600	N-6				
CN505	P-4			RB3	K-4		
CN506	N-11	IC3	F-3	RB6	B-6		
CN507	L-11	IC4	B-4	RB7	A-9		
CN508	J-11	IC5	G-5	RB10	K-4		
CN509	H-11	IC8	K-4	RB11	K-8		
CN510	P-4	IC9	M-2				
CN511	J-11	IC10	E-2	RV1	J-1		
CN512	H-11	IC11	M-2	RV2	J-1		
CN513	E-11	IC12	N-2	RV3	K-1		
CN514	F-11	IC13	G-2	RV4	K-1		
CN515	G-11	IC14	E-3				
CN516	G-11	IC17	G-3	X1	H-3		
CN517	M-11	IC18	G-6	X302	J-7		
CN518	A-7	IC101	N-10				
CN519	C-11	IC102	L-9				
CN520	P-8	IC103	H-10				
CN521	D-11	IC104	H-3				
CN522	F-11	IC105	M-8				
CN523	P-7	IC301	P-2				
CN524	P-8	IC302	H-2				
CN525	A-5	IC303	E-8				
CN526	G-8	IC304	P-5				
CN527	A-8	IC305	E-9				
CN528	A-9	IC306	E-10				
CN529	A-10	IC311	D-9				

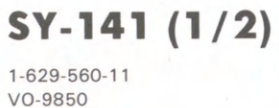
CV401	A-7	IC315	M-8				
		IC316	L-3				
		IC318	D-9				
D2	L-4	IC401	B-4				
D3	K-3	IC403	C-2				
D4	J-3	IC404	B-3				
D5	B-1	IC405	B-5				
D6	C-1						
D10	L-4	Q2	K-3				
D11	M-7	Q3	K-3				
D12	H-9	Q4	N-3				
D301	N-5	Q5	C-1				
D302	M-5	Q6	B-1				
D303	P-7	Q301	N-5				
D304	P-7	Q302	L-9				
D305	P-7	Q303	N-5				
D306	P-7	Q304	C-9				
D307	M-9	Q305	C-10				
D308	M-9	Q306	P-5				
D309	M-8	Q307	N-5				
D310	M-9	Q308	M-3				
D311	P-7	Q309	P-6				
D312	F-10	Q310	P-4				
D313	G-10	Q311	M-5				
D314	F-10	Q312	P-4				
D315	G-10	Q313	M-5				
D316	J-7	Q314	P-6				
D317	J-9	Q315	N-6				
D320	G-8	Q316	N-6				
D321	H-8	Q317	P-7				
D501	P-10	Q318	P-7				
D502	P-10	Q319	P-7				
D503	M-1	Q336	P-3				

SY-141 (1-629-560-11) S



SY-141

— COMPONENT SIDE —
1-629-560-11
VO-9850

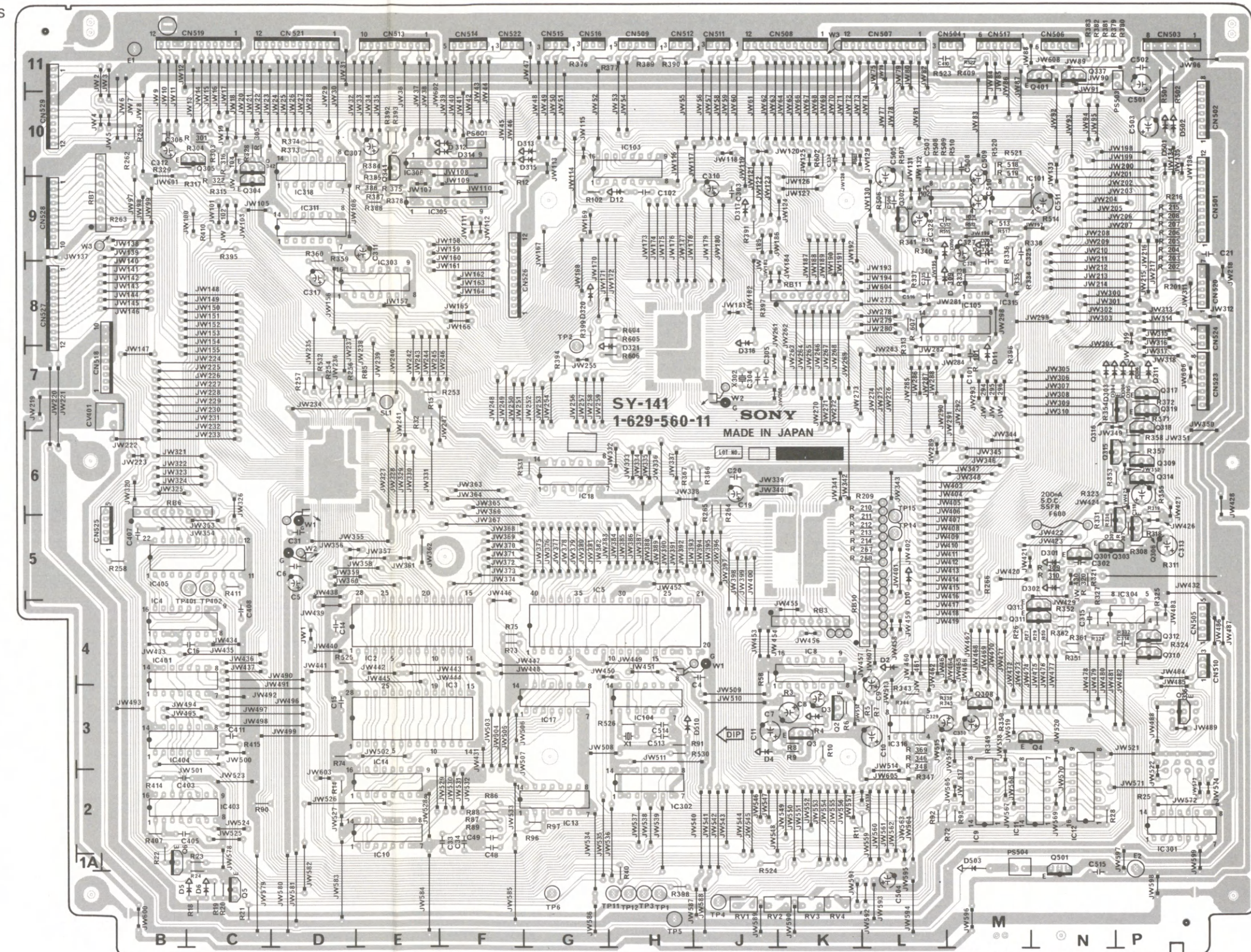


SY-141 (2/2): SYSTEM CONTROL, REEL SERVO

SY-141 (1-629-560-11) C

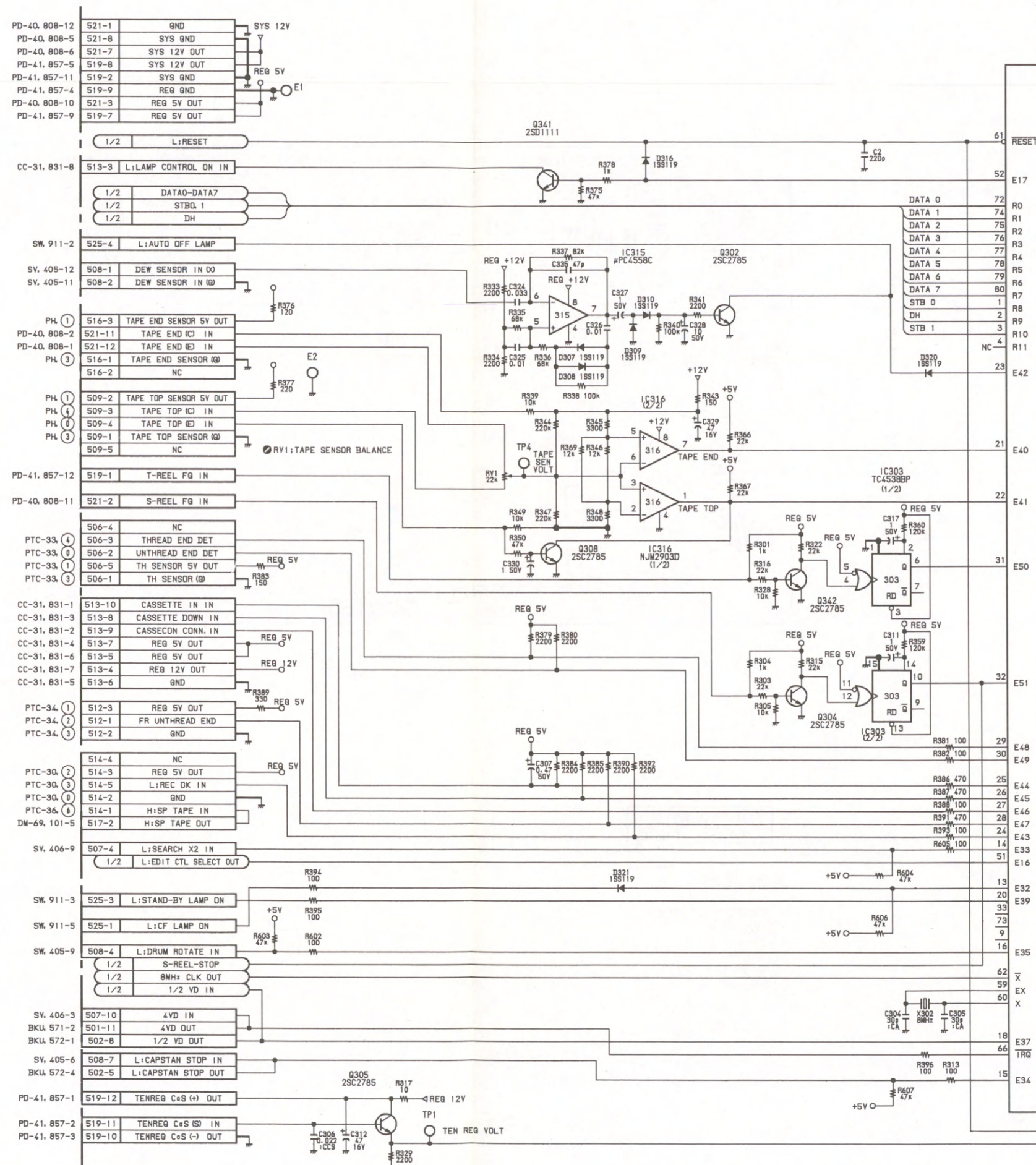
SY-141 (1-629-560-11) S

CNI2	E-4	D510	H-3	Q337	N-11	IC1	D-6
				Q341	E-10	IC6	K-6
CN501	P-9	E1	B-11	Q342	C-10	IC307	H-7
CN502	P-10	E2	P-1	Q401	N-11		
CN503	P-11			Q501	N-1		
CN504	M-11	F600	N-6				
CN505	P-4			RB3	K-4		
CN506	N-11	IC3	F-3	RB6	B-6		
CN507	L-11	IC4	B-4	RB7	A-9		
CN508	J-11	IC5	G-5	RB10	K-4		
CN509	H-11	IC8	K-4	RB11	K-8		
CN510	P-4	IC9	M-2				
CN511	J-11	IC10	E-2	RV1	J-1		
CN512	H-11	IC11	M-2	RV2	J-1		
CN513	E-11	IC12	N-2	RV3	K-1		
CN514	F-11	IC13	G-2	RV4	K-1		
CN515	G-11	IC14	E-3				
CN516	G-11	IC17	G-3	X1	H-3		
CN517	M-11	IC18	G-6	X302	J-7		
CN518	A-7	IC101	N-10				
CN519	C-11	IC102	L-9				
CN520	P-8	IC103	H-10				
CN521	D-11	IC104	H-3				
CN522	F-11	IC105	M-8				
CN523	P-7	IC301	P-2				
CN524	P-8	IC302	H-2				
CN525	A-5	IC303	E-8				
CN526	G-8	IC304	P-5				
CN527	A-8	IC305	E-9				
CN528	A-9	IC306	E-10				
CN529	A-10	IC311	D-9				
CV401	A-7	IC315	M-8				
		IC318	D-9				
D2	L-4	IC401	B-4				
D3	K-3	IC403	C-2				
D4	J-3	IC404	B-3				
D5	B-1	IC405	B-5				
D6	C-1						
D10	L-4	Q2	K-3				
D11	M-7	Q3	K-3				
D12	H-9	Q4	N-3				
D301	N-5	Q5	C-1				
D302	M-5	Q6	B-1				
D303	P-7	Q301	N-5				
D304	P-7	Q302	L-9				
D305	P-7	Q303	N-5				
D306	P-7	Q304	C-9				
D307	M-9	Q305	C-10				
D308	M-9	Q306	P-5				
D309	M-8	Q307	N-5				
D310	M-9	Q308	M-3				
D311	P-7	Q309	P-6				
D312	F-10	Q310	P-4				
D313	G-10	Q311	M-5				
D314	F-10	Q312	P-4				
D315	G-10	Q313	M-5				
D316	J-7	Q314	P-6				
D317	J-9	Q315	N-6				
D320	G-8	Q316	N-6				
D321	H-8	Q317	P-7				
D501	P-10	Q318	P-7				
D502	P-10	Q319	P-7				
D503	M-1	Q336	P-3				



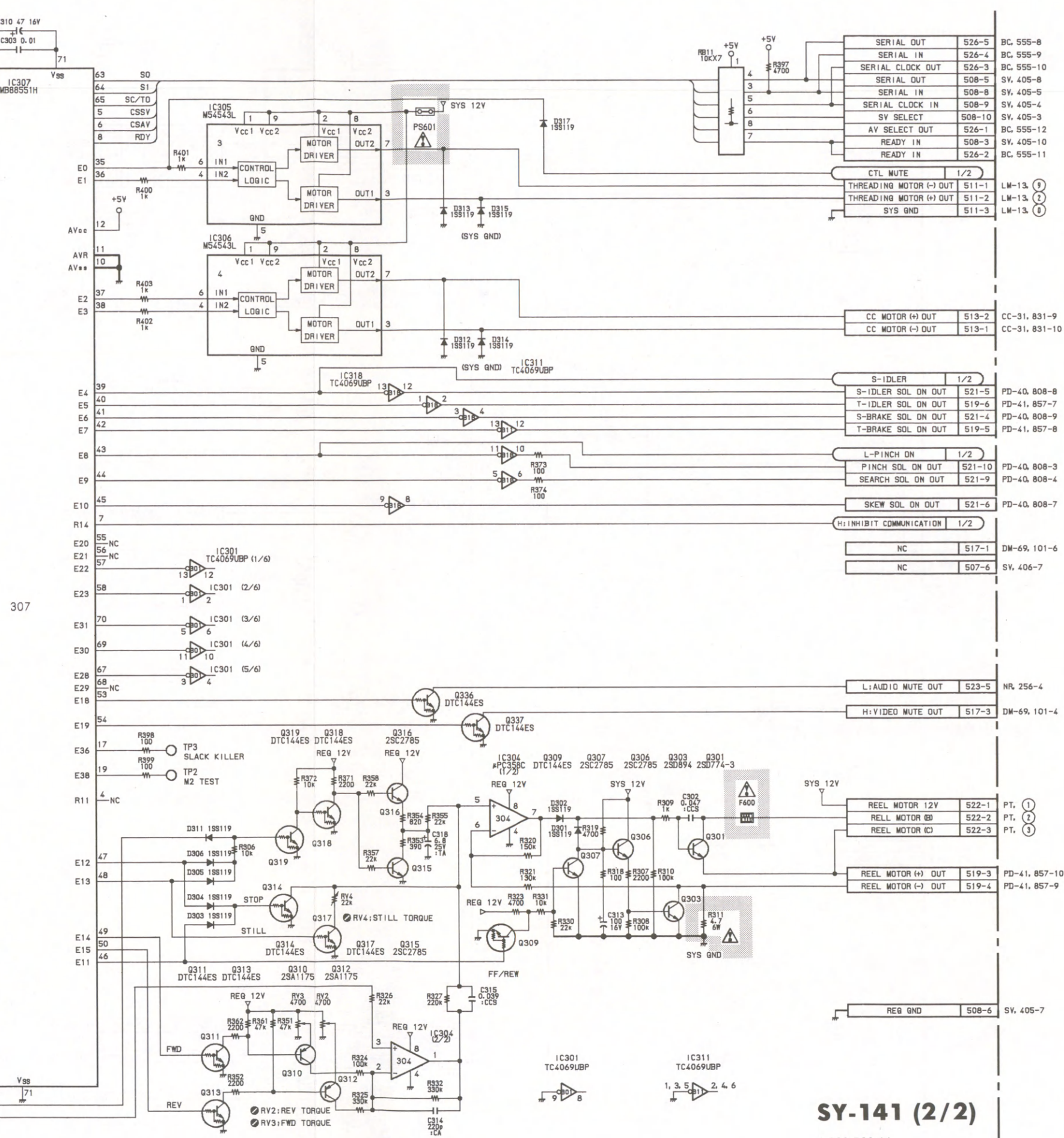
SY-141

— COMPONENT SIDE —
1-629-560-11
VO-9850



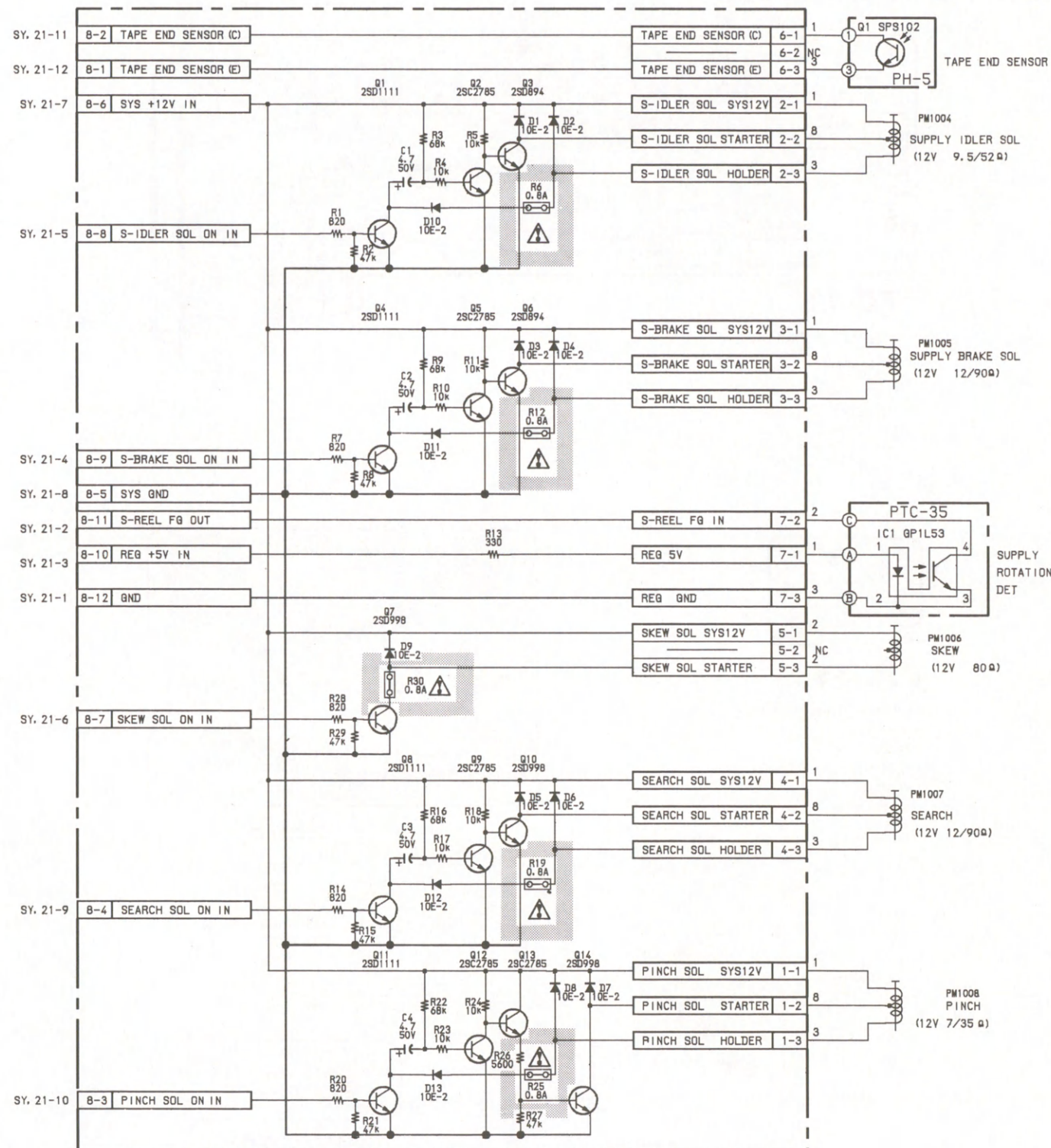
注意 1:  印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

NOTE:
The -marked components are critical to safety. Replace only with same components as specified.

**SY-141 (2/2)**

1-629-560-11
VO-9850

PD-40: PLUNGER SOLENOIDS



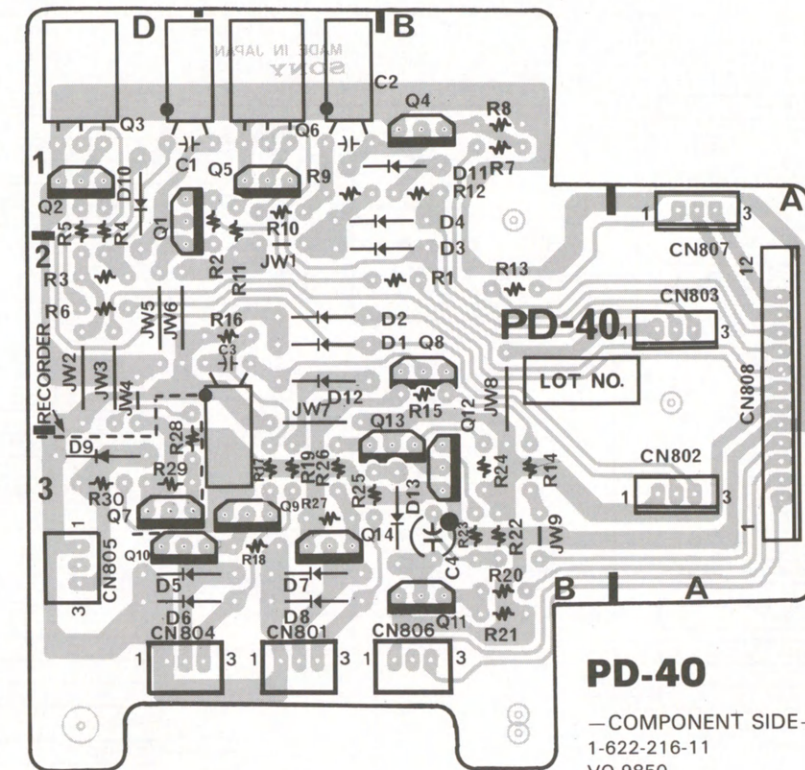
注意 1:  印の部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

NOTE:  -marked components are critical to safety. Replace only with same components as specified.

PD-40

1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-40: PLUNGER SOLENOIDS
PH-5: TAPE TOP/END DETECTOR
PTC-35: S/T REEL ROTATION DETECTOR

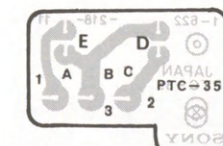
**PD-40**

—COMPONENT SIDE—
1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P



PH-5

— COMPONENT SIDE —
1-603-737-11
VO-9850
VO-9850P
VO-9800
VO-9800P

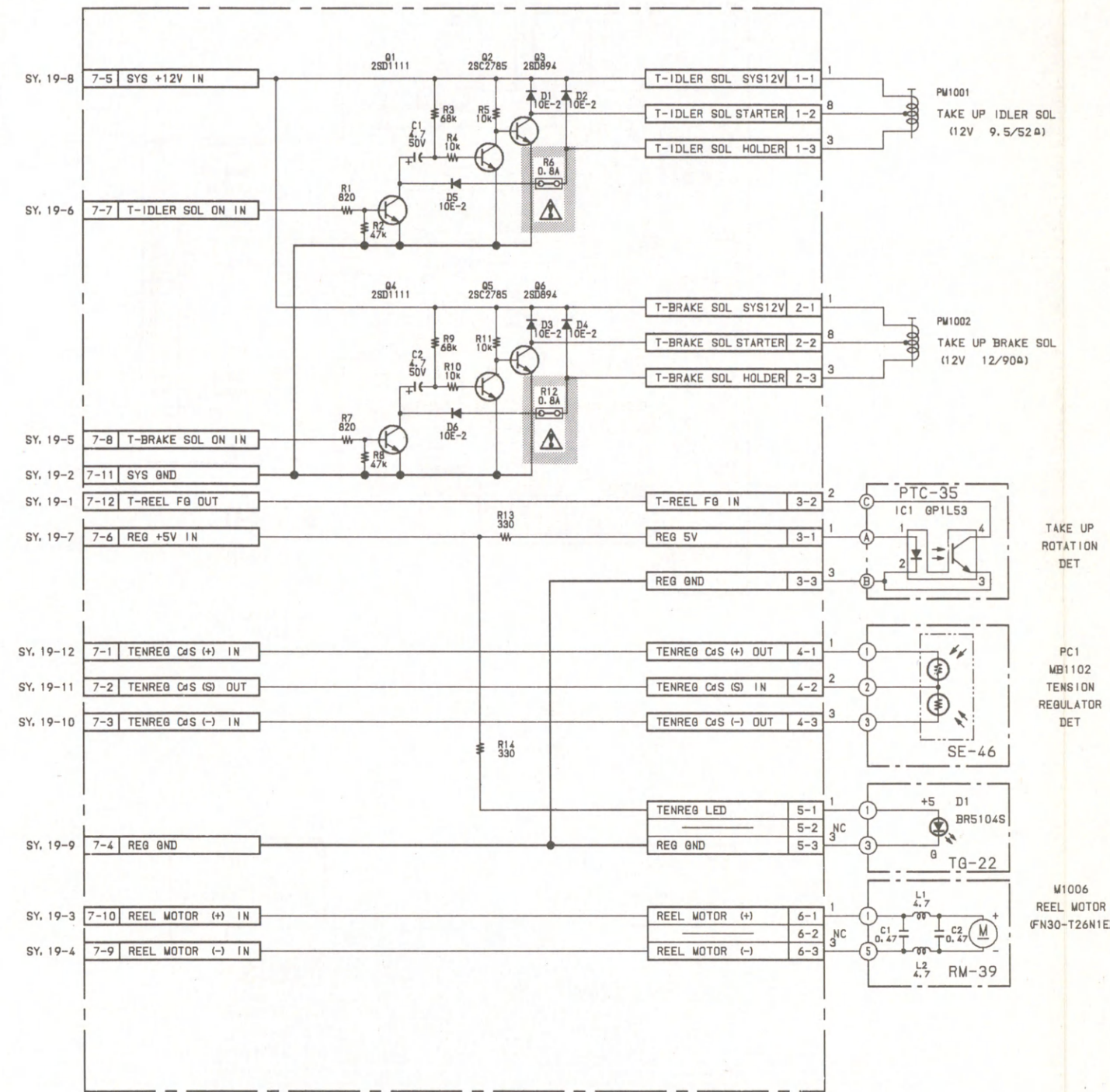


PTC-35

—COMPONENT SIDE—
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P

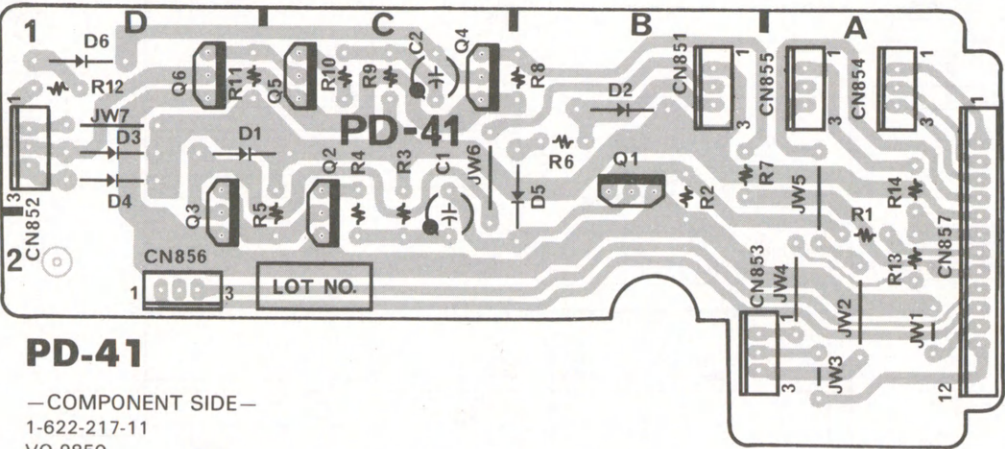
PD-41: PLUNGER SOLENOIDS

PD-41: PLUNGER SOLENOIDS
PTC-35: S/T REEL ROTATION DETECTOR
RM-39: REEL MOTOR
SE-46: TENSION REGULATOR DETECTOR
TG-22: TENSION REGULATOR LED



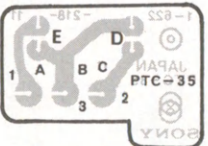
PD-41

1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P



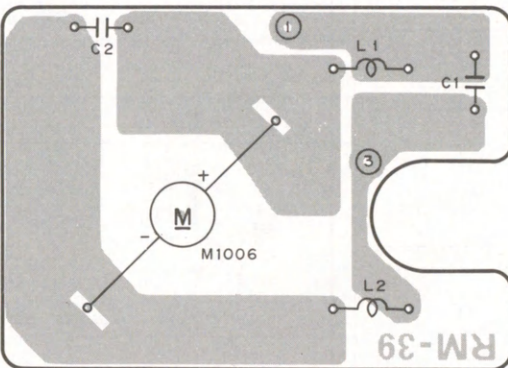
PD-41

— COMPONENT SIDE —
1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P



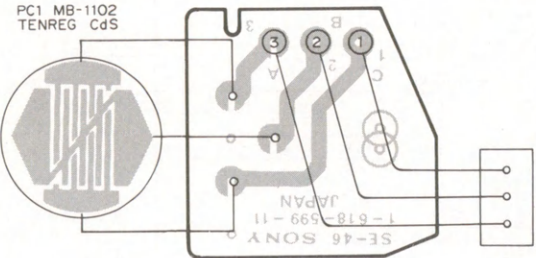
PTC-35

— COMPONENT SIDE —
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P



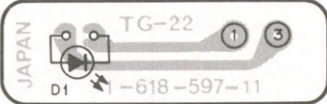
RM-39

— COMPONENT SIDE —
1-618-873-11
VO-9850
VO-9850P
VO-9800
VO-9800P



SE-46

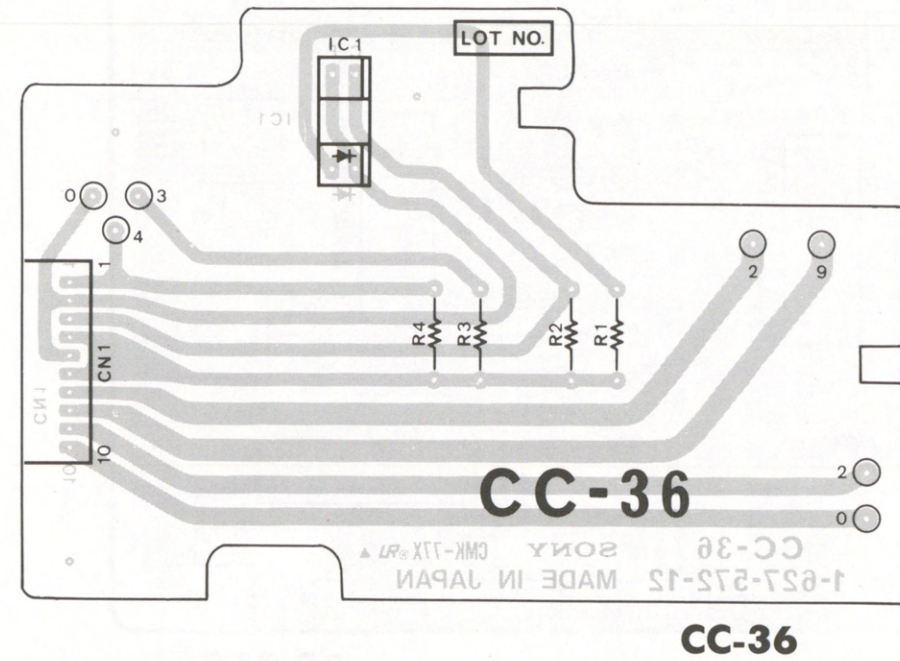
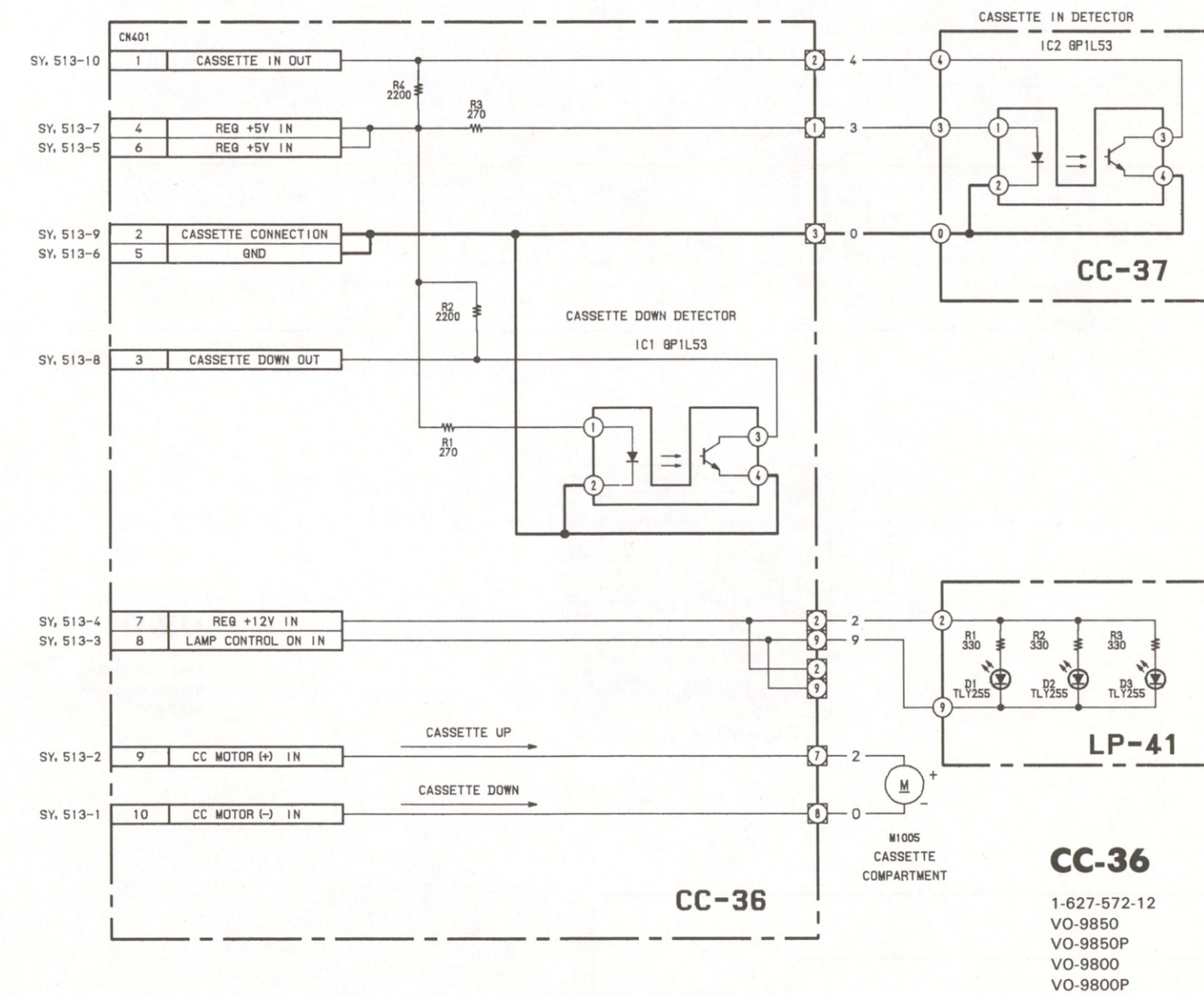
— SOLDERING SIDE —
1-618-599-11
VO-9850
VO-9850P
VO-9800
VO-9800P



TG-22

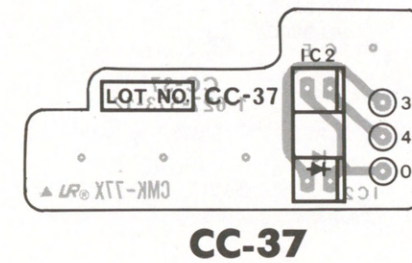
— COMPONENT SIDE —
1-618-597-11
VO-9850
VO-9850P
VO-9800
VO-9800P

CC-36: JUNCTION BOARD FOR CC-37, LP-41
CC-37: CASSETTE IN DETECTOR
LP-41: CASSETTE COMPARTMENT LAMP



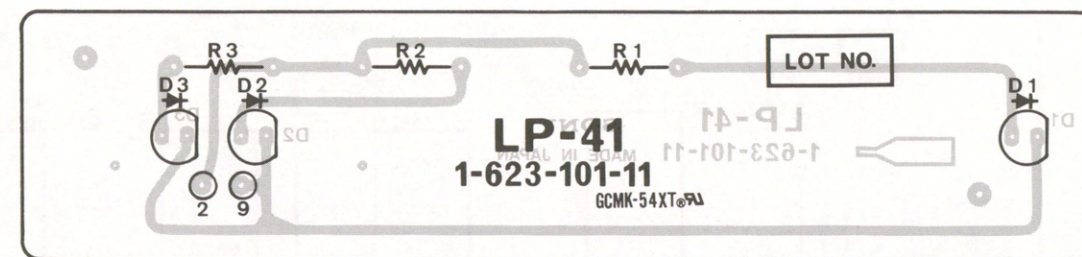
CC-36

—COMPONENT SIDE—
1-627-572-12
VO-9850
VO-9850P
VO-9800
VO-9800P



CC-37

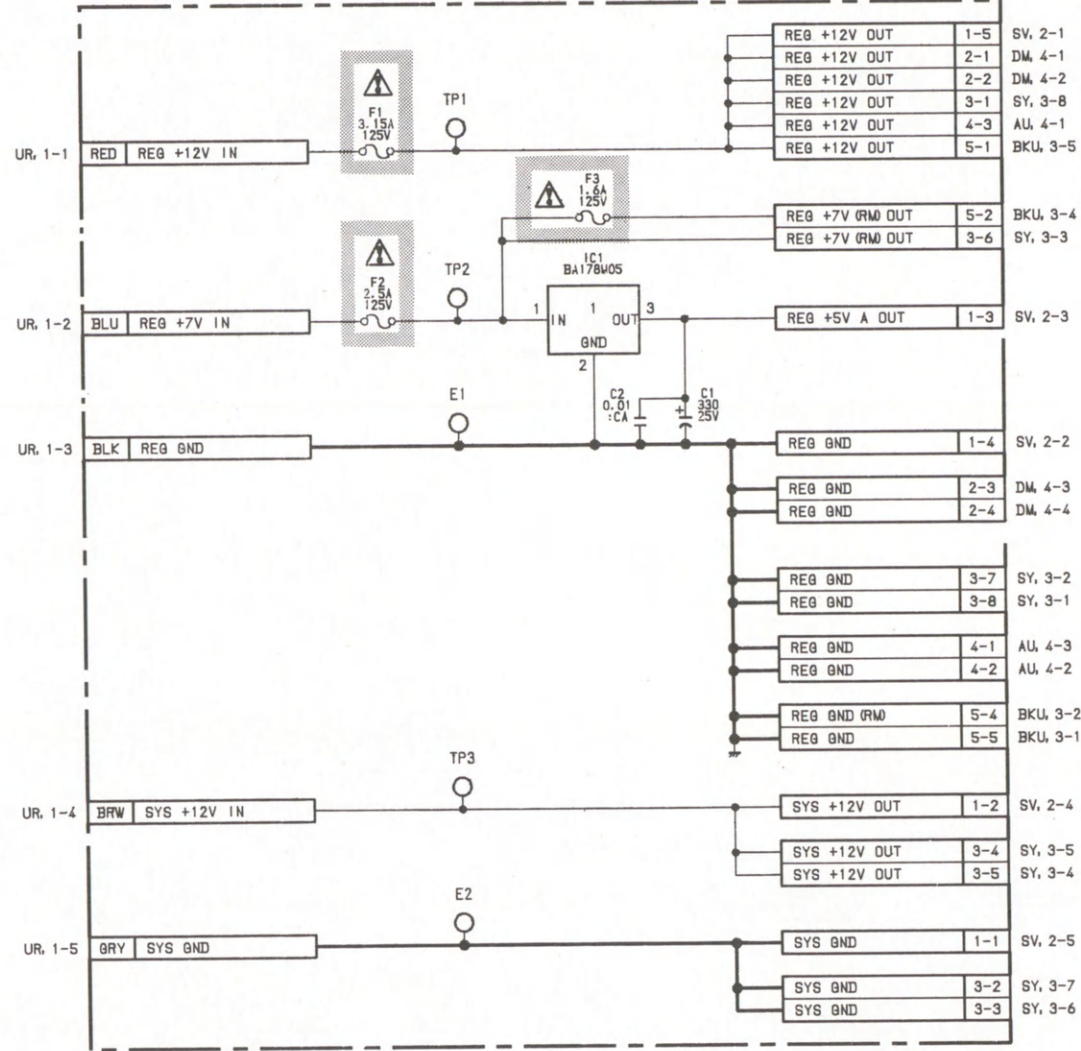
—COMPONENT SIDE—
1-627-573-12
VO-9850
VO-9850P
VO-9800
VO-9800P



LP-41

—COMPONENT SIDE—
1-623-101-11
VO-9850
VO-9850P
VO-9800
VO-9800P

DC-31D: DC SUPPLY
SW-315: SELECT SWITCH
UR-01: SWITCHING REGULATOR

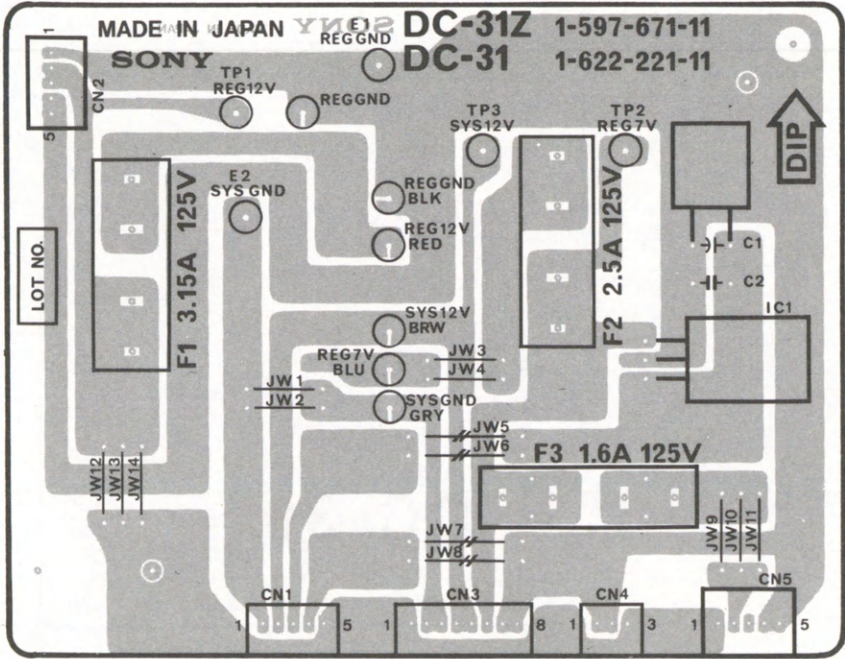


DC-31D

1-622-221-11
VO-9850
VO-9800

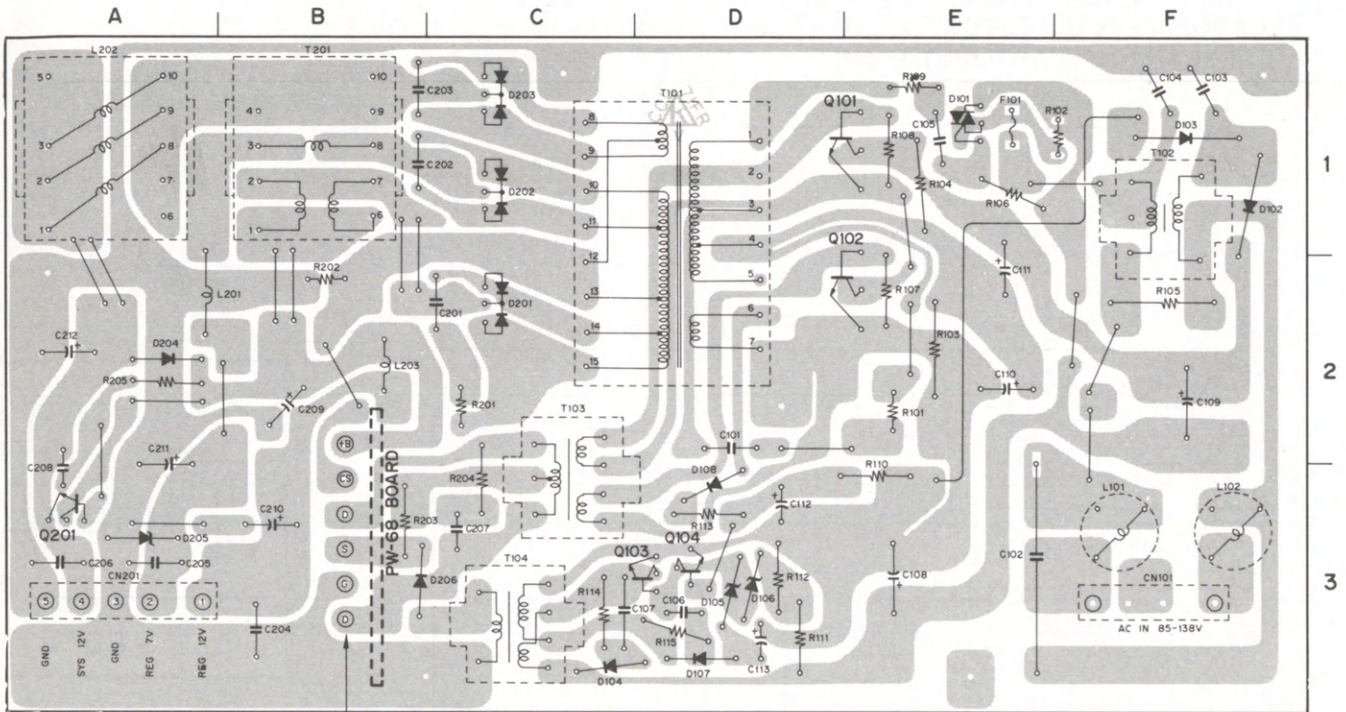
注意 1: ⚠ 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

NOTE:
The ⚠ -marked components are critical to safety. Replace only with same components as specified.

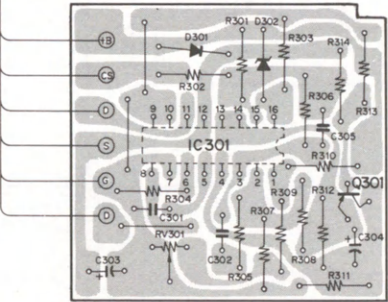


DC-31D

— COMPONENT SIDE —
1-622-221-11
VO-9850
VO-9800



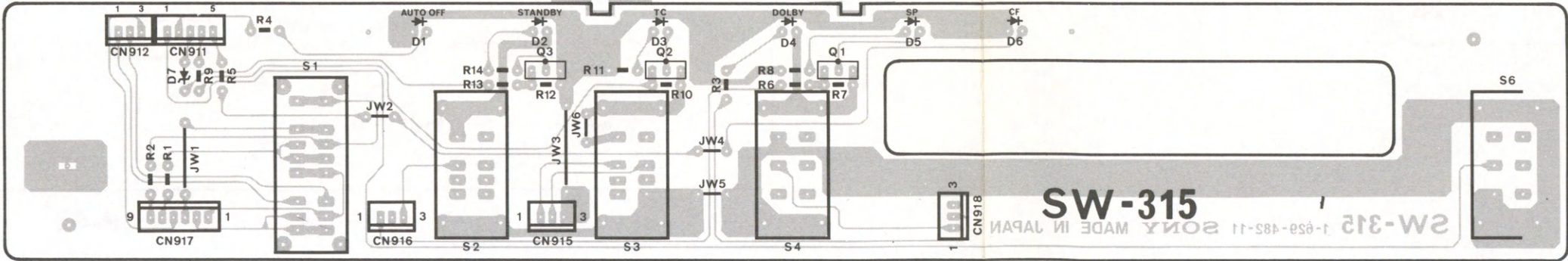
PW-67 - SOLDERING SIDE -



PW-68 - SOLDERING SIDE -

UR-01

1-413-069-00
VO-9850
VO-9800



SW-315

SW-315

— COMPONENT SIDE —
1-629-482-11
VO-9850

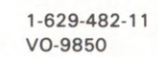
UR-01: SWITCHING REGULATOR
SW-315: SELECT SWITCH

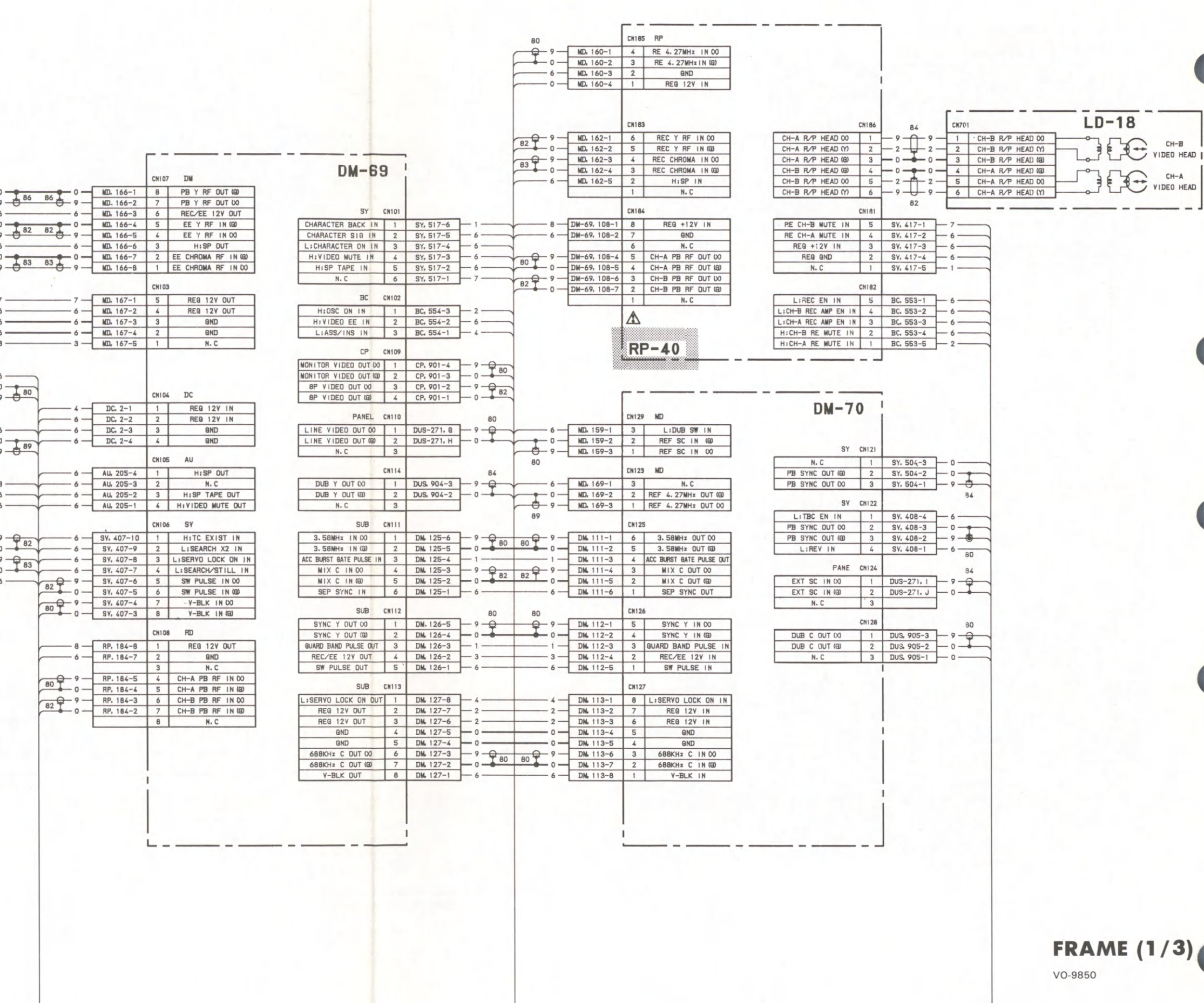
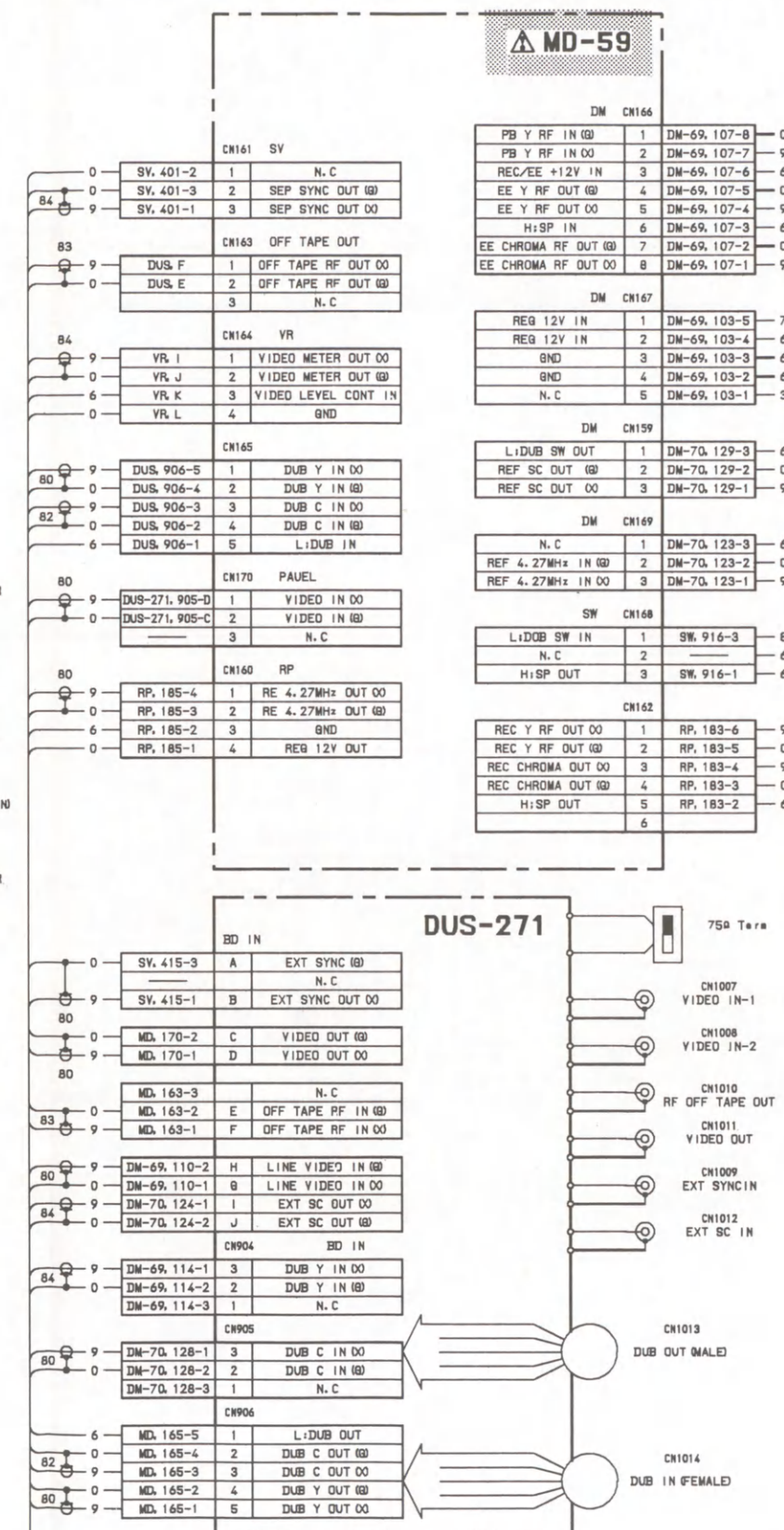


1-413-069-14
VO-9850
VO-9850P
VO-9800
VO-9800P

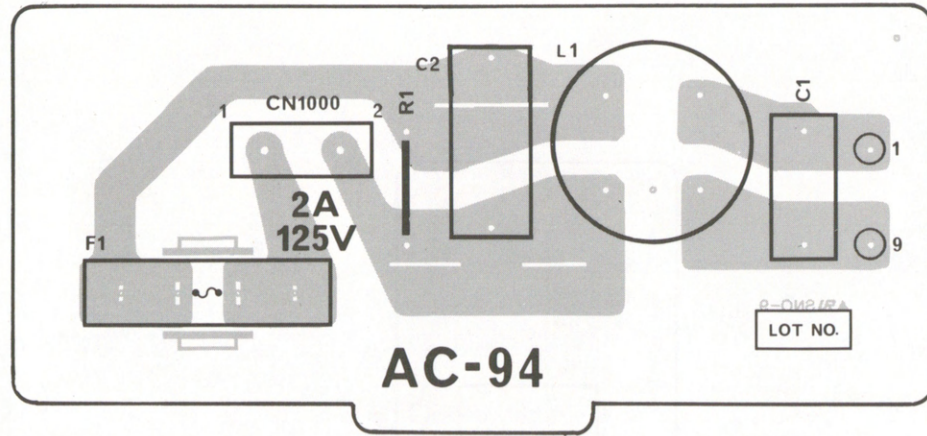
注意 1:  印の部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The -marked components are critical to safety. Replace only with same components as specified.

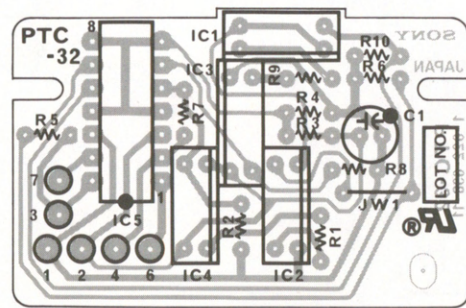




AC-94: LINE FILTER
PTC-32: SEARCH DIAL

**AC-94**

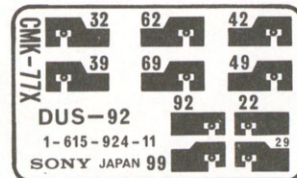
— COMPONENT SIDE —
1-629-483-11
VO-9850
VO-9800



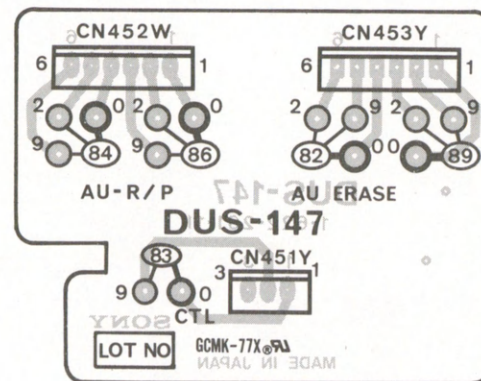
PTC-32

—COMPONENT SIDE—
1-622-638-11
VO-9850
VO-9850P
VO-9800
VO-9800P

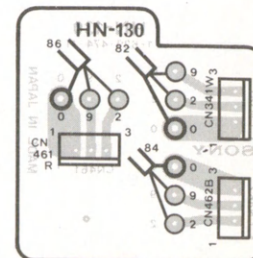
DUS-92: R/P HEAD, AUDIO ERASE HEAD
 DUS-147: JUNCTION BOARD FOR AUDIO HEAD
 EC-32: FR CTL HEAD
 HN-130: ERASE HEAD
 MT-53: METER LAMP

**DUS-92**

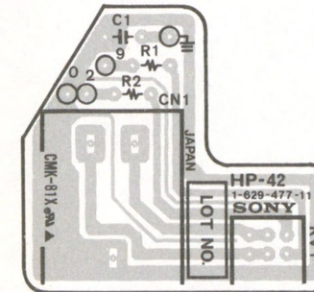
—COMPONENT SIDE—
 1-615-924-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**DUS-147**

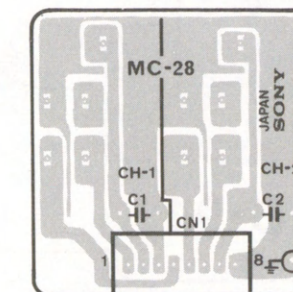
—COMPONENT SIDE—
 1-622-261-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**HN-130**

—COMPONENT SIDE—
 1-629-474-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**HP-42**

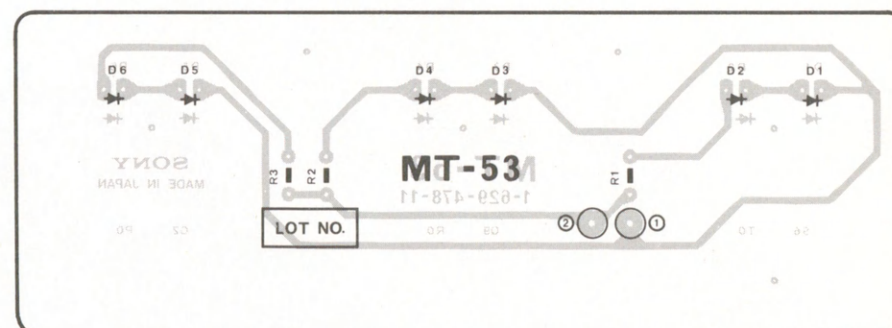
—COMPONENT SIDE—
 1-629-477-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**MC-28**

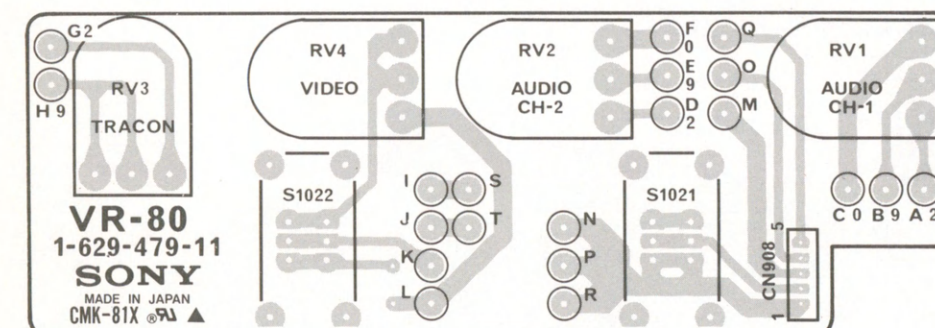
—COMPONENT SIDE—
 1-622-222-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

**EC-32**

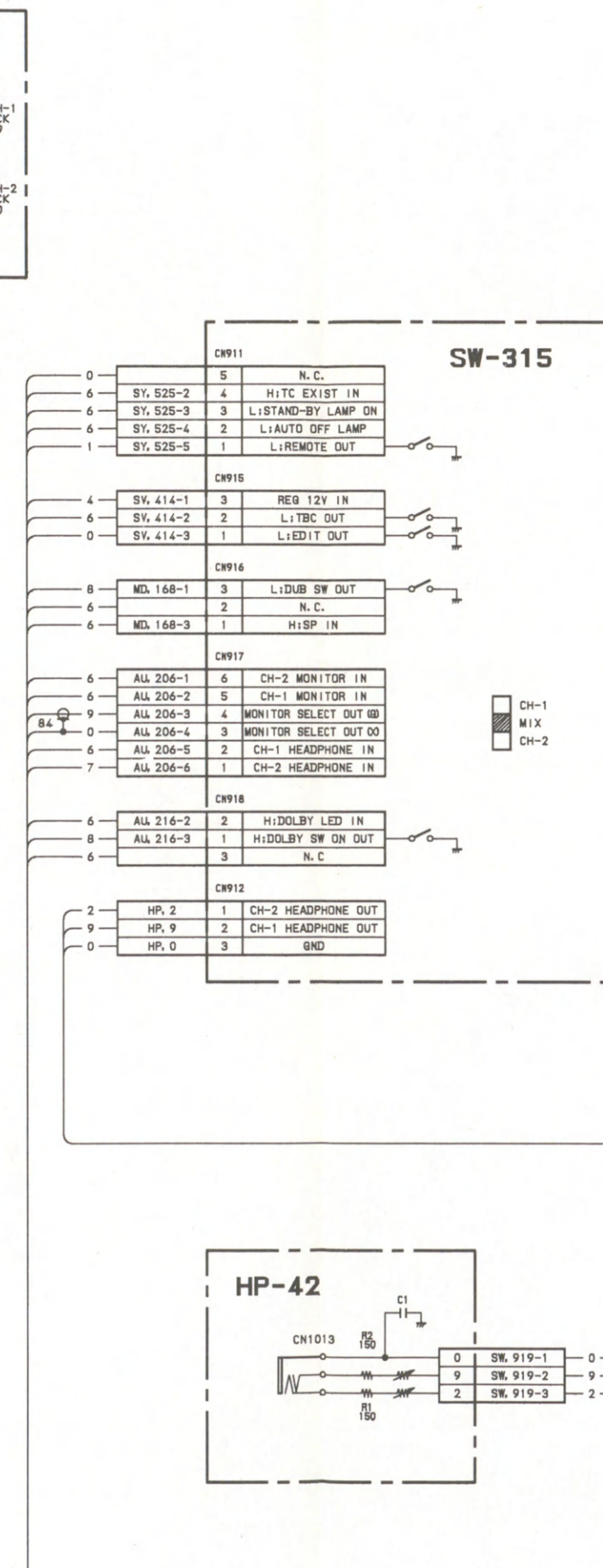
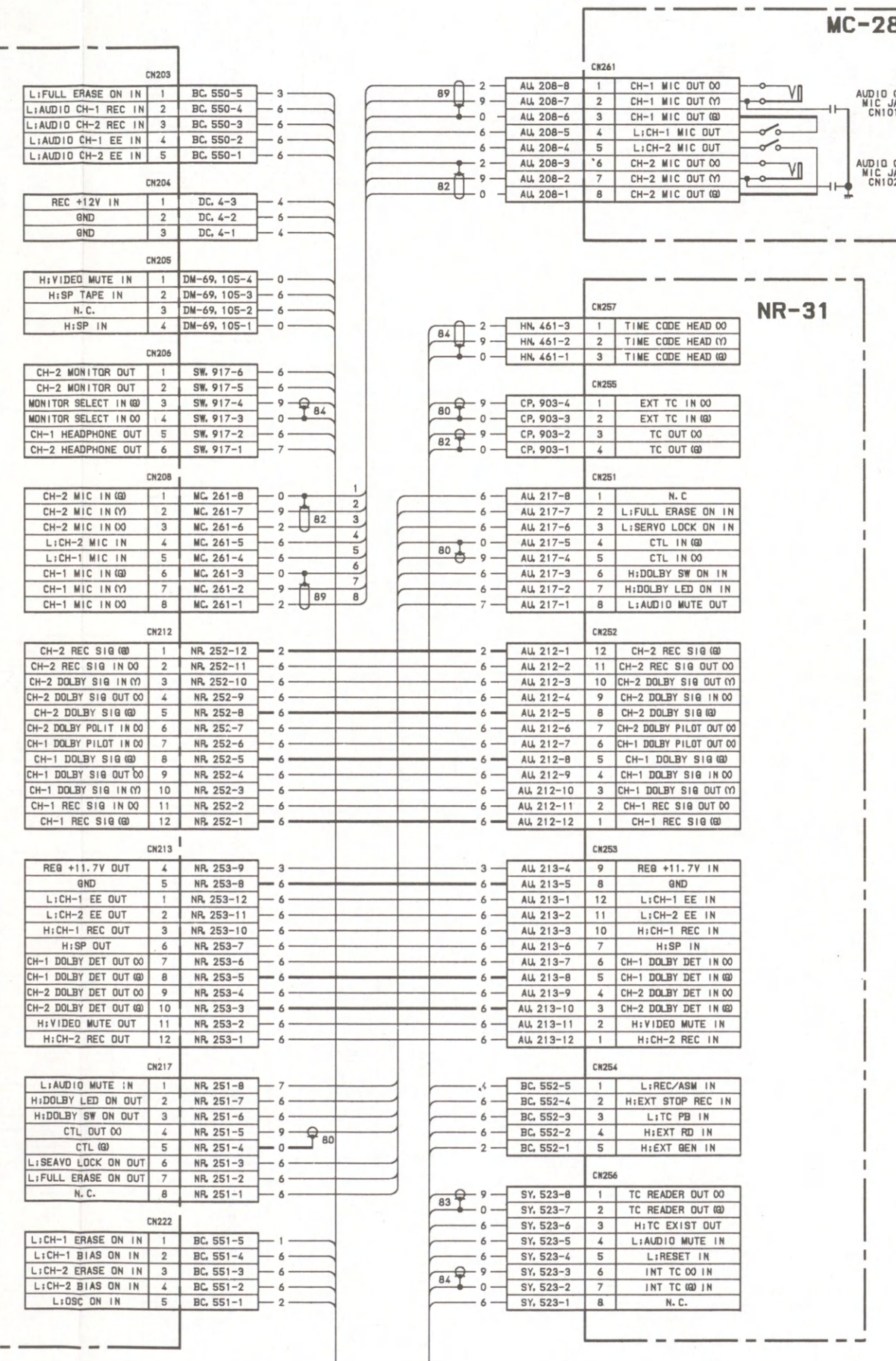
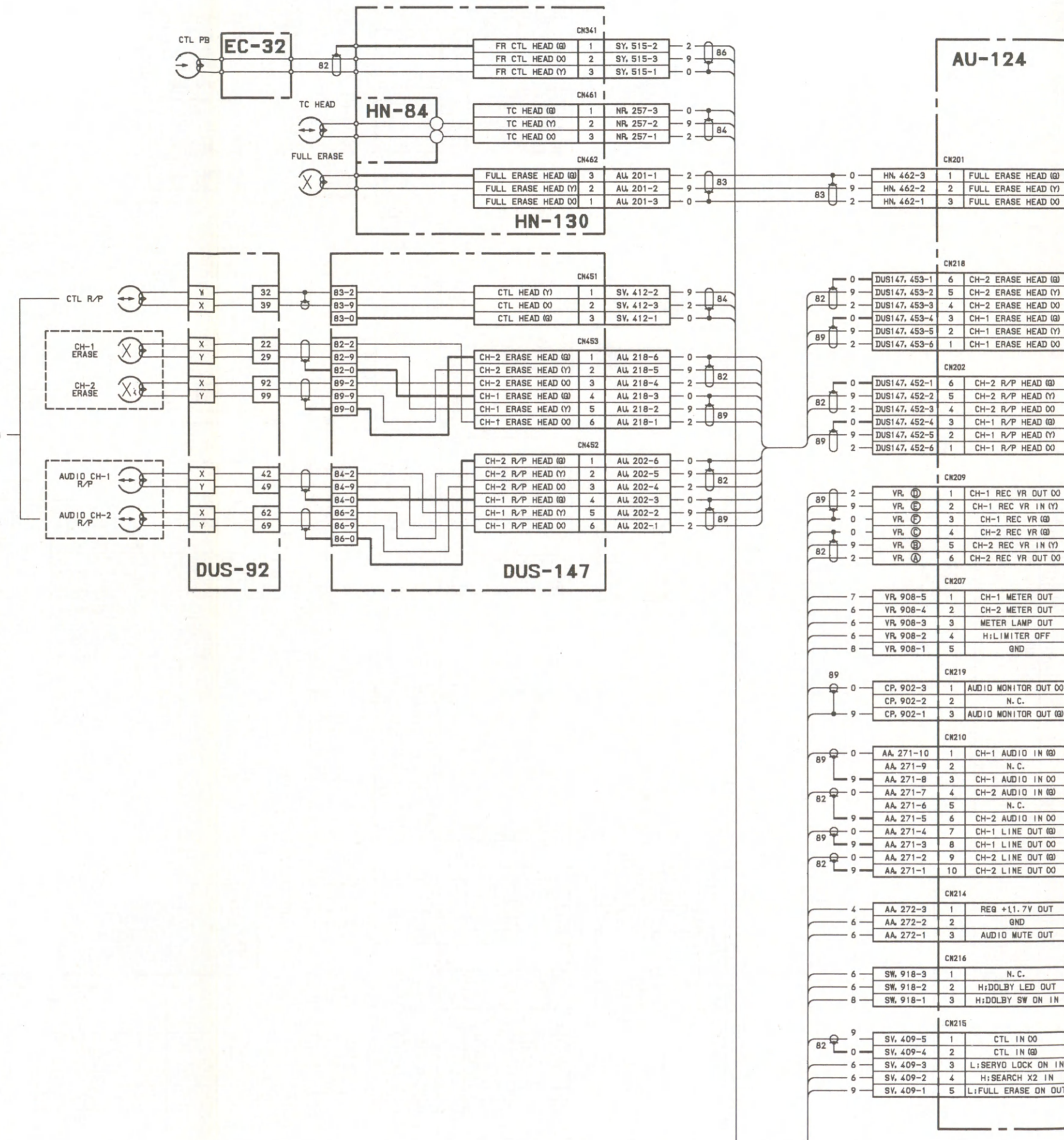
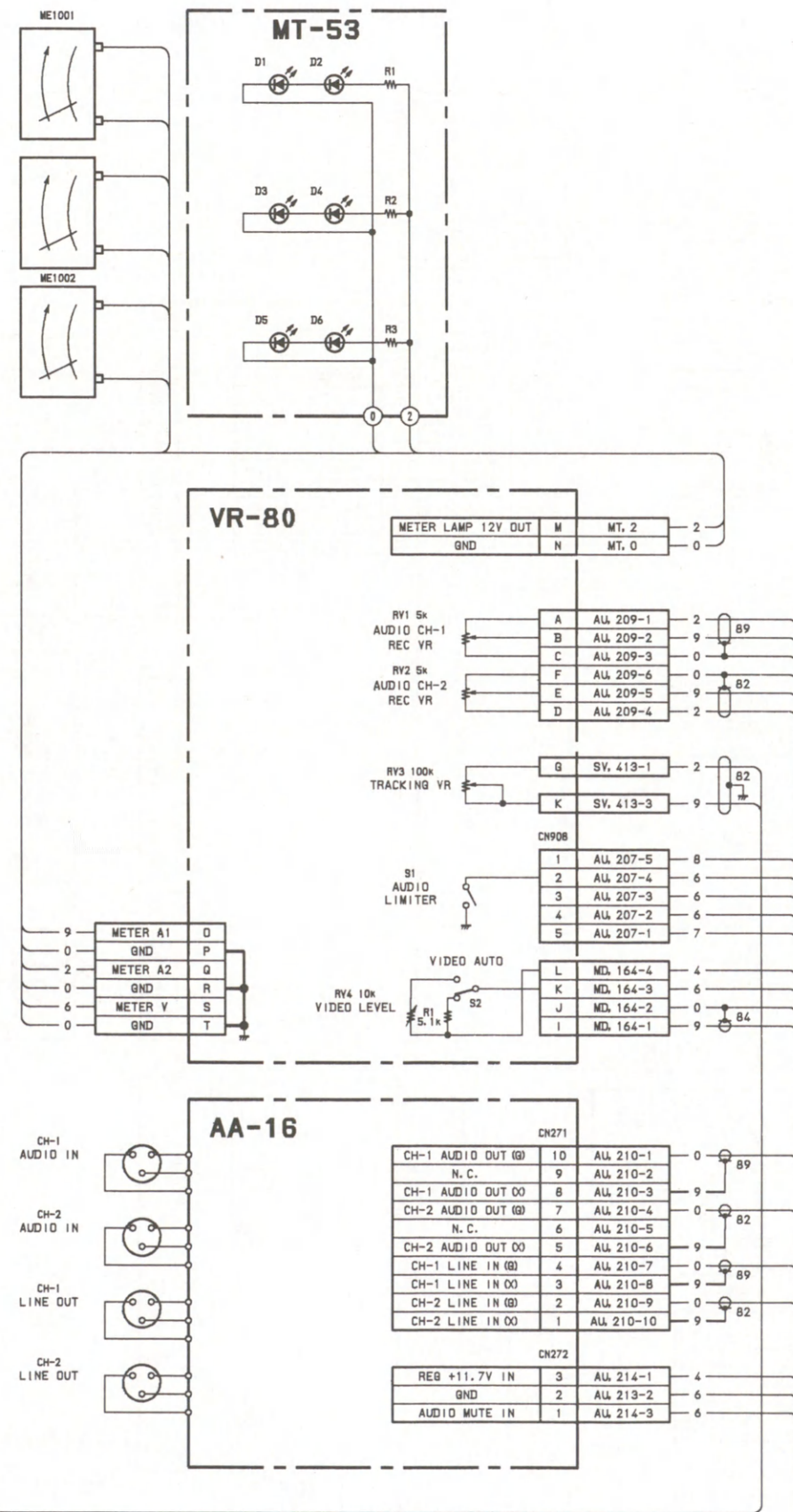
—COMPONENT SIDE—
 1-629-475-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

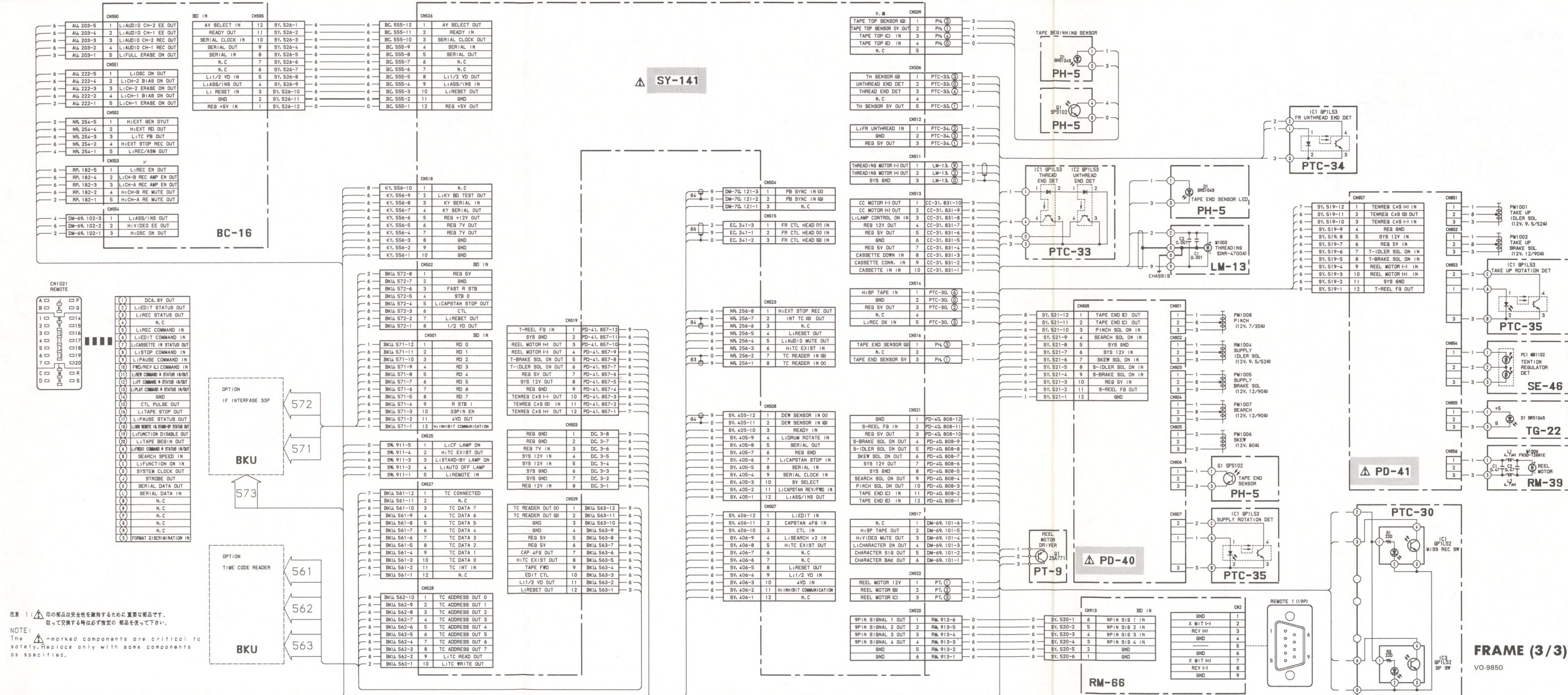
**MT-53**

—COMPONENT SIDE—
 1-629-478-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P

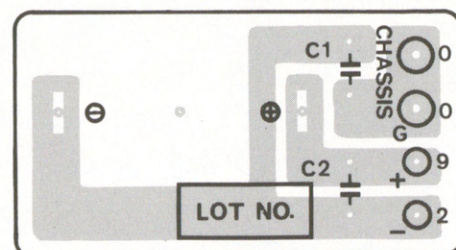
**VR-80**

—COMPONENT SIDE—
 1-629-479-11
 VO-9850
 VO-9850P
 VO-9800
 VO-9800P



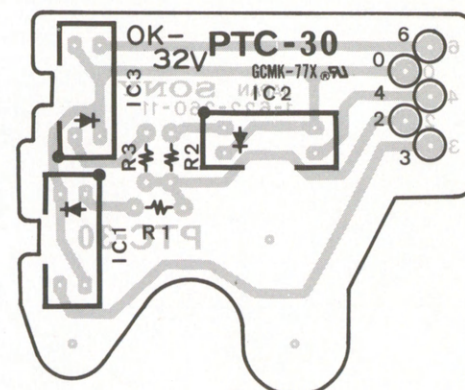


LM-13: THREADING MOTOR
PT-9: REEL MOTOR DRIVER
PTC-30: SP, MISS REC DETECTOR
RM-66: REMOTE CONTROL



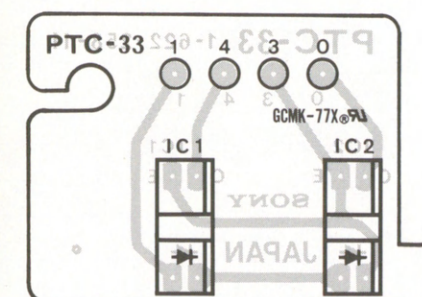
LM-13

— COMPONENT SIDE —
1-618-600-11
VO-9850
VO-9850P
VO-9800
VO-9800P



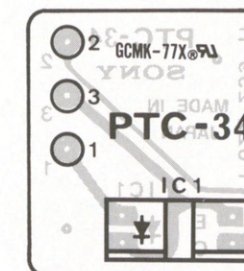
PTC-30

— COMPONENT SIDE —
1-622-260-11
VO-9850
VO-9850P
VO-9800
VO-9800P



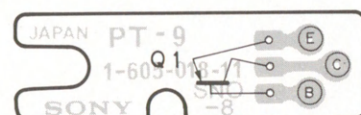
PTC-33

— COMPONENT SIDE —
1-622-258-11
VO-9850
VO-9850P
VO-9800
VO-9800P



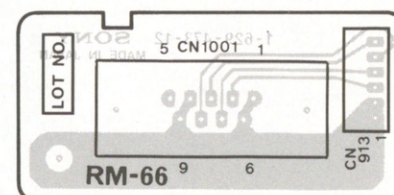
PTC-34

— COMPONENT SIDE —
1-622-259-11
VO-9850
VO-9850P
VO-9800
VO-9800P



PT-9

— COMPONENT SIDE —
1-605-018-11
VO-9850
VO-9850P
VO-9800
VO-9800P



RM-66

— COMPONENT SIDE —
1-629-473-12
VO-9850
VO-9850P
VO-9800
VO-9800P

SECTION 16

SPARE PARTS AND FIXTURE

16-1. PARTS INFORMATION

- (1) The Δ marked components are critical to safety.
Replace only with the same components as specified.
- (2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "improved parts and/or engineering changes" or "standardization of genuine parts".
This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present". Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.
- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.
- (4) Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- (5) (T) after a spring description is shown on the exploded views in order to indicate the number of spring turns required for the use. (Example) Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

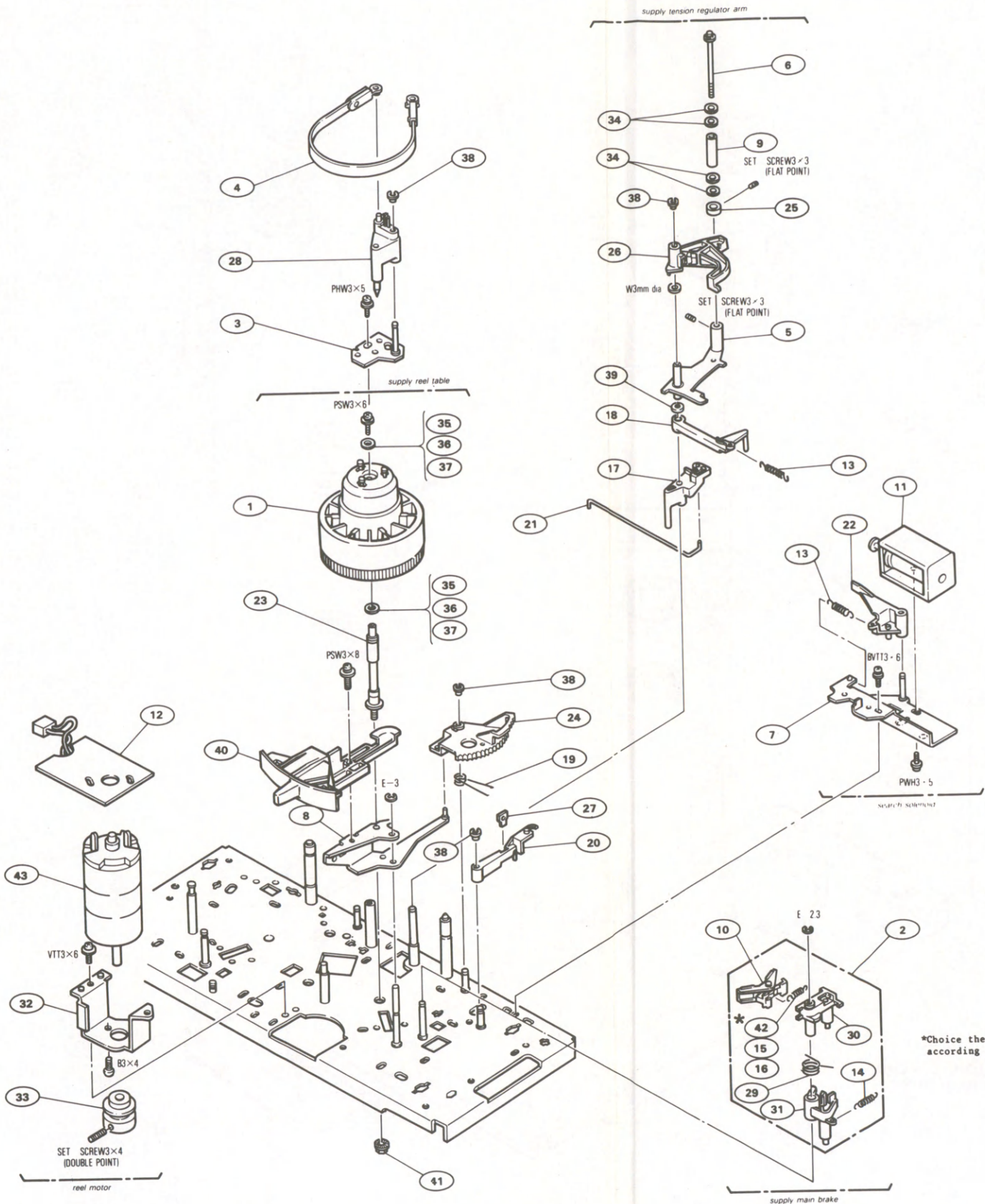
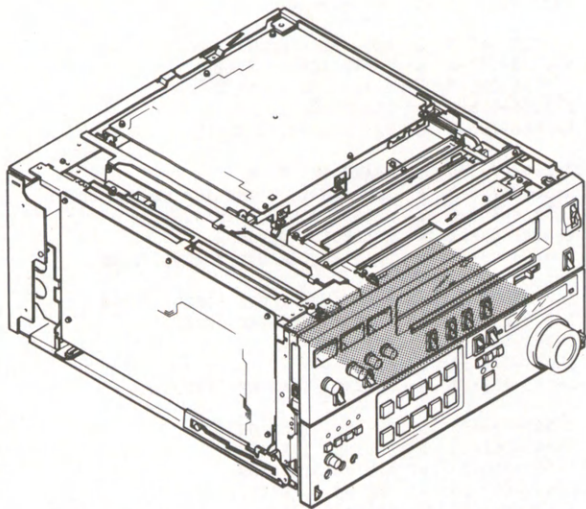
16-2. EXPLODED VIEW

. Exploded views are composed of the following blocks.

- (1) Reel Chassis (1), Supply Side
 - S Reel Table
 - S Tension Regulator Arm
 - Search Solenoid
 - S Main Brake
 - Reel Motor
- (2) Reel Chassis (2), Take-up Side
 - T Reel Table
 - FF/REW Idler
 - T Main brake
 - T Tension Regulator Arm
 - R Brake
- (3) Reel Chassis (3), Back Side
 - S Idler Solenoid
 - T Idler Solenoid
 - FF/REW Idler Pulley
 - S Brake Solenoid
 - T Brake Solenoid
- (4) Threading Ring Block
 - Threading Ring
 - Gear Box
 - T Correction Guide
 - Tape Beginning Sensor
 - FR Detector
- (5) Threading Arm
 - T Drawer Arm
 - S Drawer Arm
 - S Drawer Roller
 - Drawer Lever
- (6) Drum and Capstan Blocks
 - Head Drum
 - Capstan Motor
 - Audio/ CTL Head
 - Tape Guides

- (7) Erase Head Base
 - Erase Head Base
 - S Guard
- (8) Pinch Lever and Pinch Solenoid Blocks
 - Pinch Lever
 - Pinch Roller Pre-set Cam
 - Pinch Solenoid
- (9) Cassette-up Compartment Block
- (10) Function Control
 - Function Control Board
 - Search Dial
- (11) Front Panel and Key Panel Blocks
- (12) Chassis Block (1), Left Side
 - Printed Circuit Boards
- (13) Chassis Block (2), Top
 - Printed Circuit Boards
- (14) Level Control
- (15) Chassis Block (3), Right Side and Rear
 - Printed Circuit Boards
 - Switching Regulator
- (16) Connector Panel for Audio Signal
- (17) Chassis Block (3), Bottom
 - Printed Circuit Boards
- (18) Ornamental Panel Block
 - U Case
 - Bottom Plate

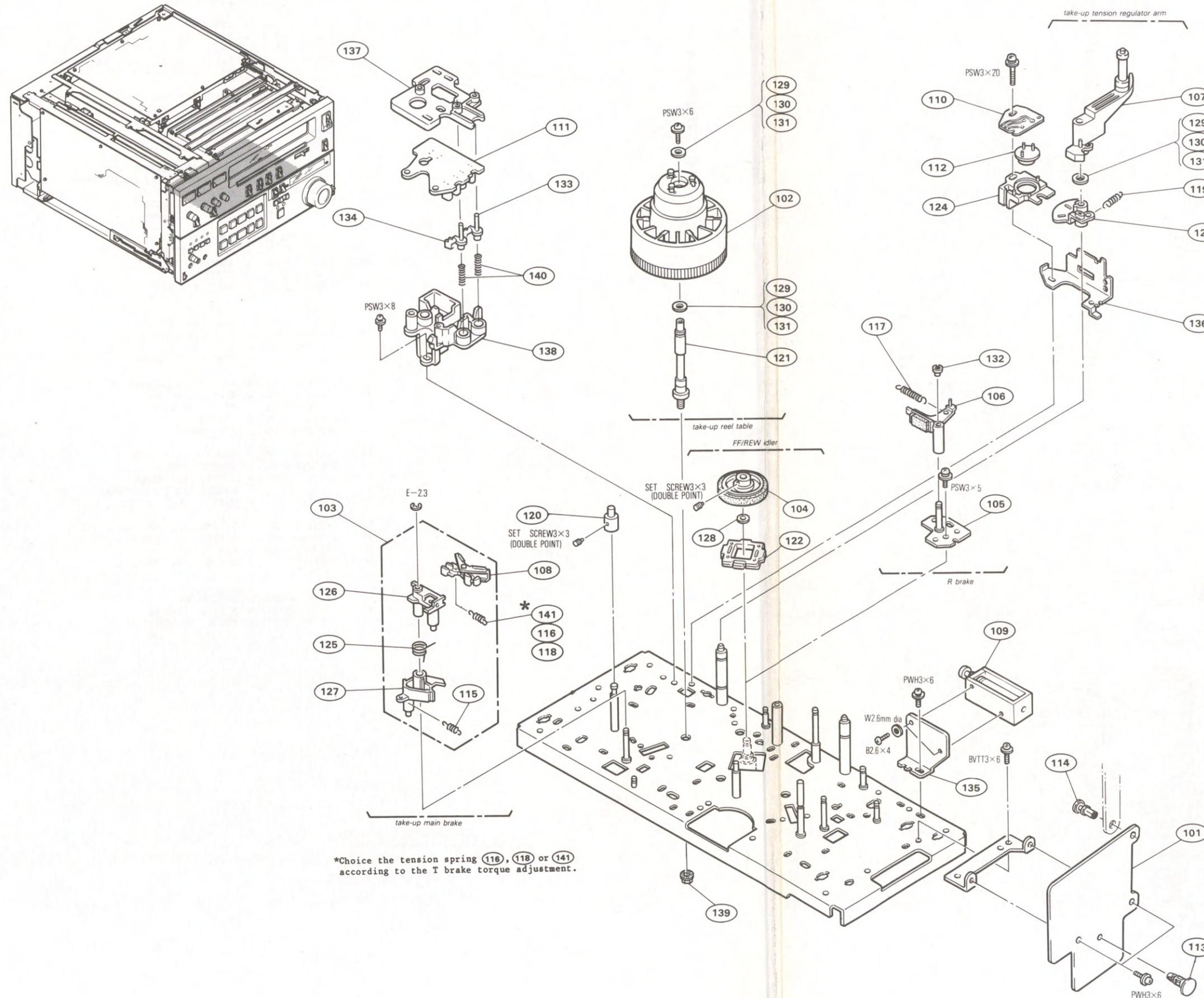
REEL CHASSIS (1), SUPPLY SIDE



No.	Part No.	SP	Description
1	A-6739-017-A	s	TABLE ASSY, REEL
2	A-6741-038-B	s	BRAKE ASSY, MAIN
3	X-3668-706-0	o	BASE ASSY, S TENSION REGULATOR
4	X-3668-707-0	s	BAND ASSY, S TENSION REGULATOR
5	X-3668-708-0	s	ARM(A)ASSY, S TENSION REGULATOR
6	X-3668-709-0	s	SHAFT (1) ASSY, ROLLER
7	X-3668-717-0	o	BASE ASSY, SEARCH
8	X-3668-725-0	o	ARM (C) ASSY, SKEW
9	X-3668-727-0	s	GUIDE ASS'Y, TAPE
10	X-3668-749-0	s	HOLDER ASSY, LINING
11	1-454-417-41	s	SOLENOID, PLUNGER
12	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
13	3-534-238-XX	s	SPRING, TENSION (23T)
14	3-535-369-XX	s	SPRING, TENSION (12T)
15	3-548-124-00	s	SPRING, TENSION
16	3-555-210-00	s	SPRING, TENSION
17	3-668-787-02	s	ARM, S DETECTION
18	3-668-794-00	o	ARM (A), SKEW
19	3-668-795-00	s	SPRING
20	3-668-797-00	o	ARM, SKEW LOCK
21	3-668-804-00	s	LINK, DETECTION TENSION
22	3-668-808-00	s	ARM, FWD, SEARCH
23	3-668-827-00	o	SHAFT (S), REEL
24	3-668-835-00	s	ARM (B), SKEW
25	3-668-874-00	s	FLANGE (1), LOWER
26	3-668-936-00	s	ARM (B), S TENSION REGULATOR
27	3-668-937-00	s	CLAW, SKEW LOCK
28	3-668-939-00	o	ARM, BAND LOCK
29	3-668-966-00	s	SPRING
30	3-668-970-00	o	ARM, BRAKE
31	3-668-971-00	o	ARM, BRAKE RELEASE
32	3-672-743-01	o	BRACKET, MOTOR
33	3-672-744-01	s	PULLEY (R), MOTOR
34	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.13T
35	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
36	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
37	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
38	3-703-074-00	s	CAP 3, SHAFT
39	3-718-389-01	s	WASHER (DIA. 3), SUS
40	3-733-619-01	s	LEVER, SKEW
41	4-304-749-00	o	NUT, FLANGE
42	4-907-156-01	s	SPRING, TENSION
43	8-835-178-01	s	MOTOR, DC FN30-T26N1E

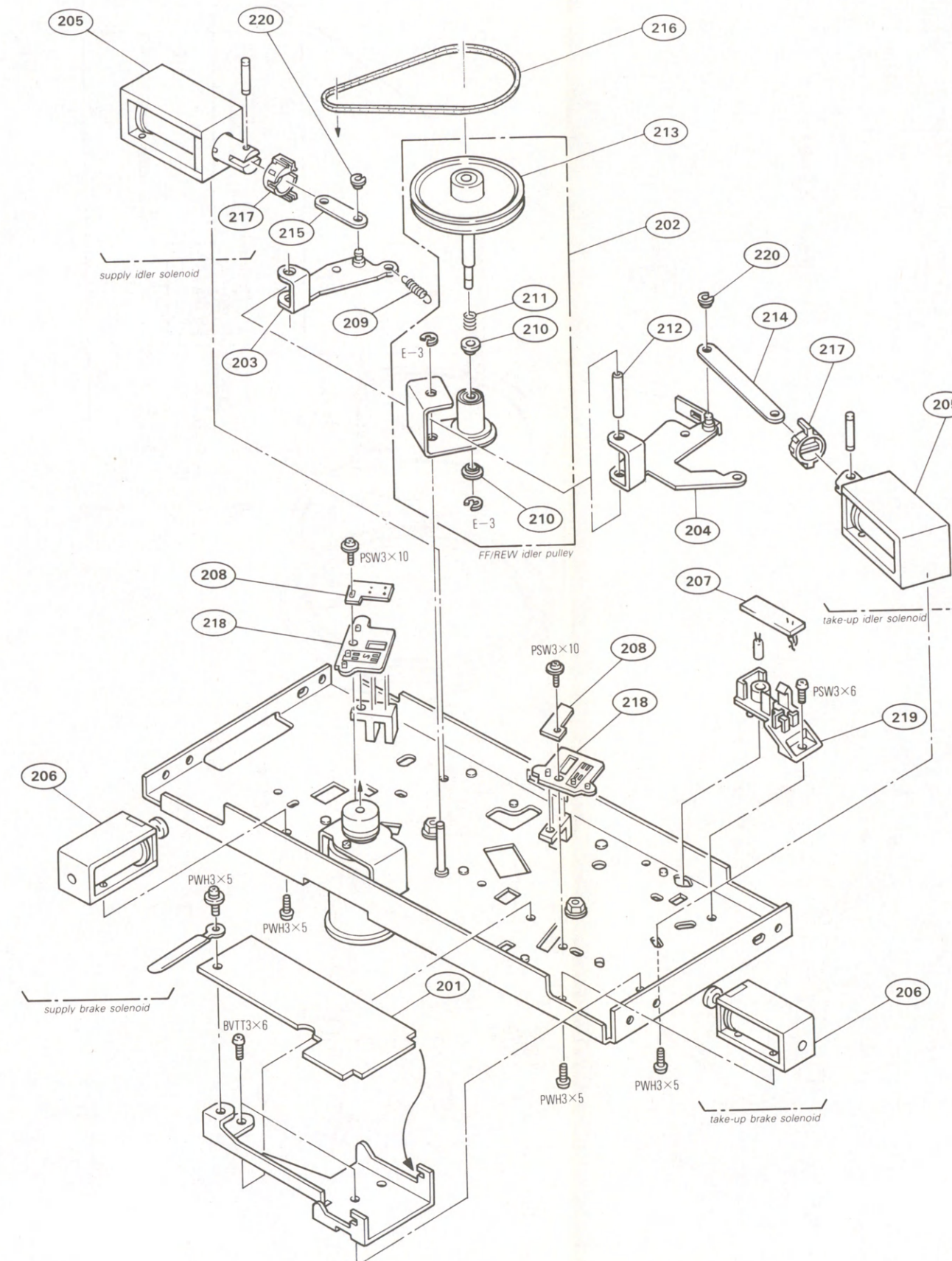
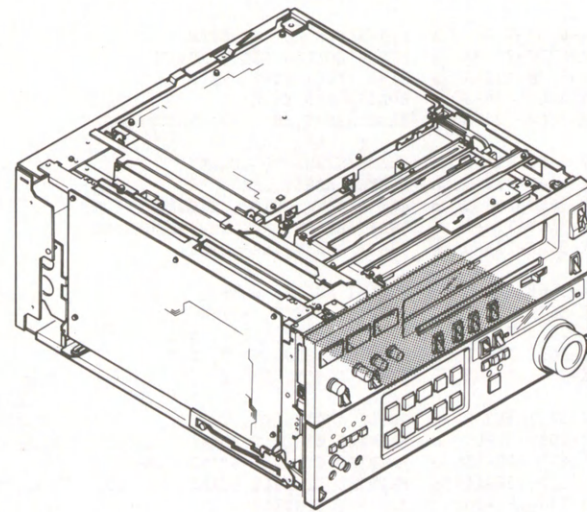
*Choice the tension spring (15), (18) or (42) according to the S brake torque adjustment.

REEL CHASSIS (2), TAKE-UP SIDE



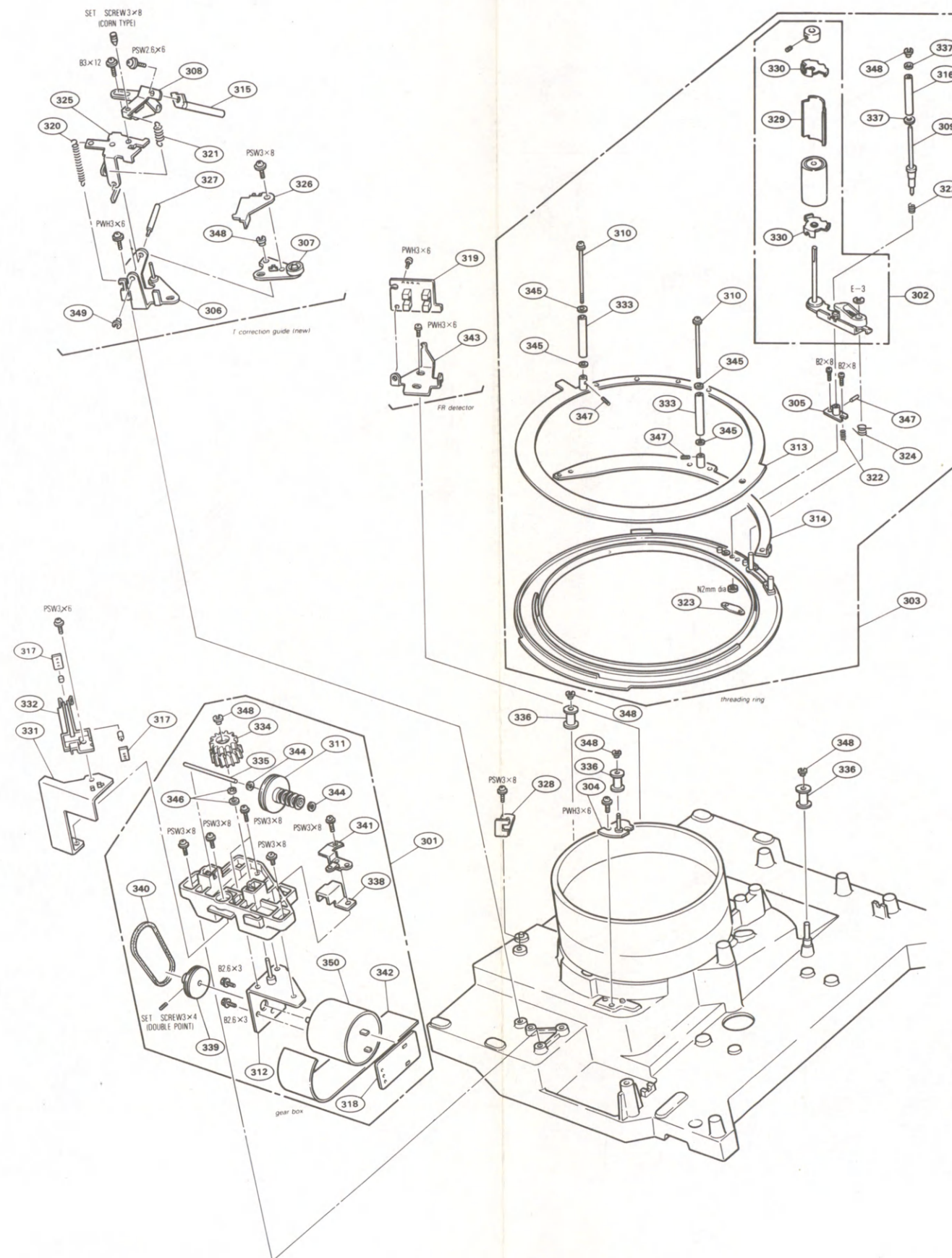
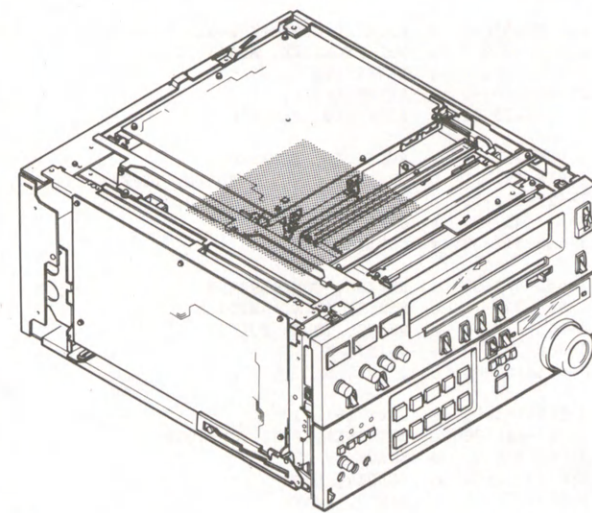
No.	Part No.	SP	Description
101	A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
102	A-6739-017-A	s	TABLE ASS'Y, REEL
103	A-6741-038-B	s	BRAKE ASS'Y, MAIN
104	X-3646-026-0	s	IDLER ASS'Y, FF
105	X-3668-705-0	o	BASE ASS'Y, R BRAKE
106	X-3668-737-0	s	BRAKE ASS'Y, R
107	X-3668-738-0	s	ARM ASS'Y, T TENSION REGULATOR
108	X-3668-749-0	s	HOLDER ASS'Y, LINING
109	1-454-446-11	s	SOLENOID, PLUNGER
110	1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
111	1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
112	1-806-232-21	s	DETECTOR MB-1102/S.N
113	2-382-416-01	o	SUPPORT, PC
114	3-531-576-11	s	REVET
115	3-535-369-XX	s	SPRING, TENSION (12T)
116	3-548-124-00	s	SPRING, TENSION
117	3-549-861-00	s	SPRING, TENSION
118	3-555-210-00	s	SPRING, TENSION
119	3-642-427-00	s	SPRING, TENSION
120	3-668-031-0C	o	RETAINER (UPPER), CASSETTE
121	3-668-766-00	o	SHAFT (T), REEL
122	3-668-780-00	o	CUSHION, IDLER
123	3-668-788-00	s	ARM, T DETECTION
124	3-668-789-00	o	HOLDER, BRIDGE, PHOTO
125	3-668-966-00	s	SPRING
126	3-668-970-00	o	ARM, BRAKE
127	3-668-971-00	o	ARM, BRAKE RELEASE
128	3-701-441-21	s	WASHER, POLY 4MM DIA., 0.50T
129	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
130	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
131	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
132	3-703-074-00	s	CAP 3, SHAFT
133	3-718-307-01	s	ACTUATOR, TRC
134	3-718-307-11	s	ACTUATOR, TRC
135	3-718-308-01	o	BRACKET, SK SOLENOID
136	3-718-326-01	o	STOPPER (SP)
137	3-718-342-01	o	TRC-BOX (UPPER)
138	3-718-343-01	o	TRC-BOX (LOWER)
139	4-304-749-00	o	NUT, FLANGE
140	4-858-779-00	s	SPRING, COMPRESSION
141	4-907-156-01	s	SPRING, TENSION

REEL CHASSIS (3), BACK SIDE



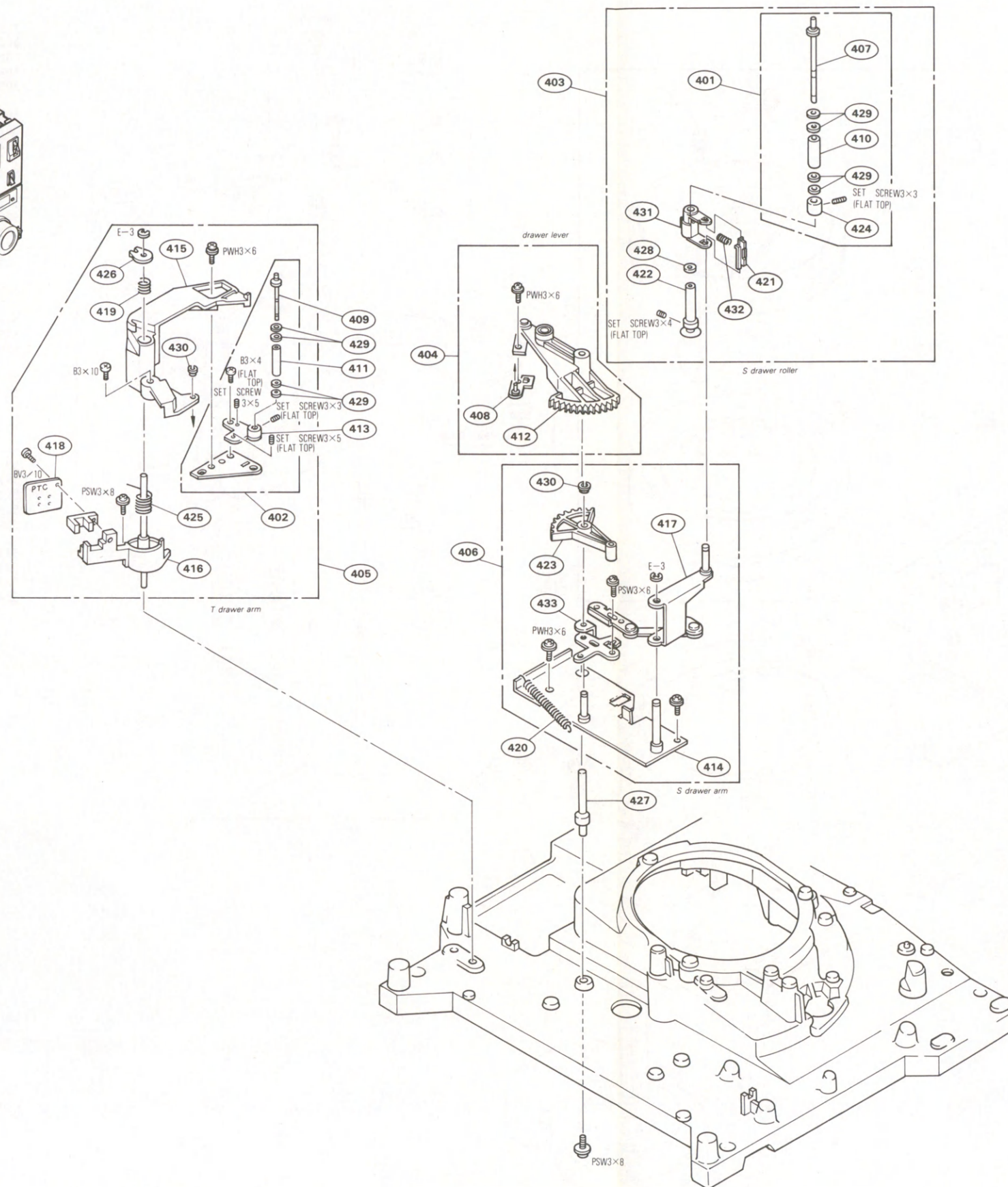
No.	Part No.	SP	Description
201	A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
202	A-6740-069-B	s	PULLEY BLOCK, ASS'Y, IDLER
203	X-3668-703-0	o	LEVER ASS'Y, S
204	X-3668-704-0	o	LEVER ASS'Y, T
205	1-454-415-11	s	SOLENOID, PLUNGER
206	1-454-417-41	s	SOLENOID, PLUNGER
207	1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
208	1-622-218-11	o	PRINTED CIRCUIT BOARD, PTC-35
209	3-437-452-00	s	SPRING, TENSION
210	3-650-512-00	s	COLLAR, (A)
211	3-651-572-00	s	SPRING, COMPRESSION
212	3-668-048-11	o	SPACER (DIA. 4x20)
213	3-668-772-00	s	SHAFT, IDLER PULLEY
214	3-668-781-00	o	JOINT, T
215	3-668-782-00	o	JOINT, S
216	3-668-785-00	s	BELT (67x2)
217	3-668-826-00	s	RETAINER, PIN, SOLENOID
218	3-668-828-02	o	BRACKET, PS
219	3-672-752-01	o	HOLDER, LED
220	3-703-074-00	s	CAP 3, SHAFT

THREADING RING BLOCK



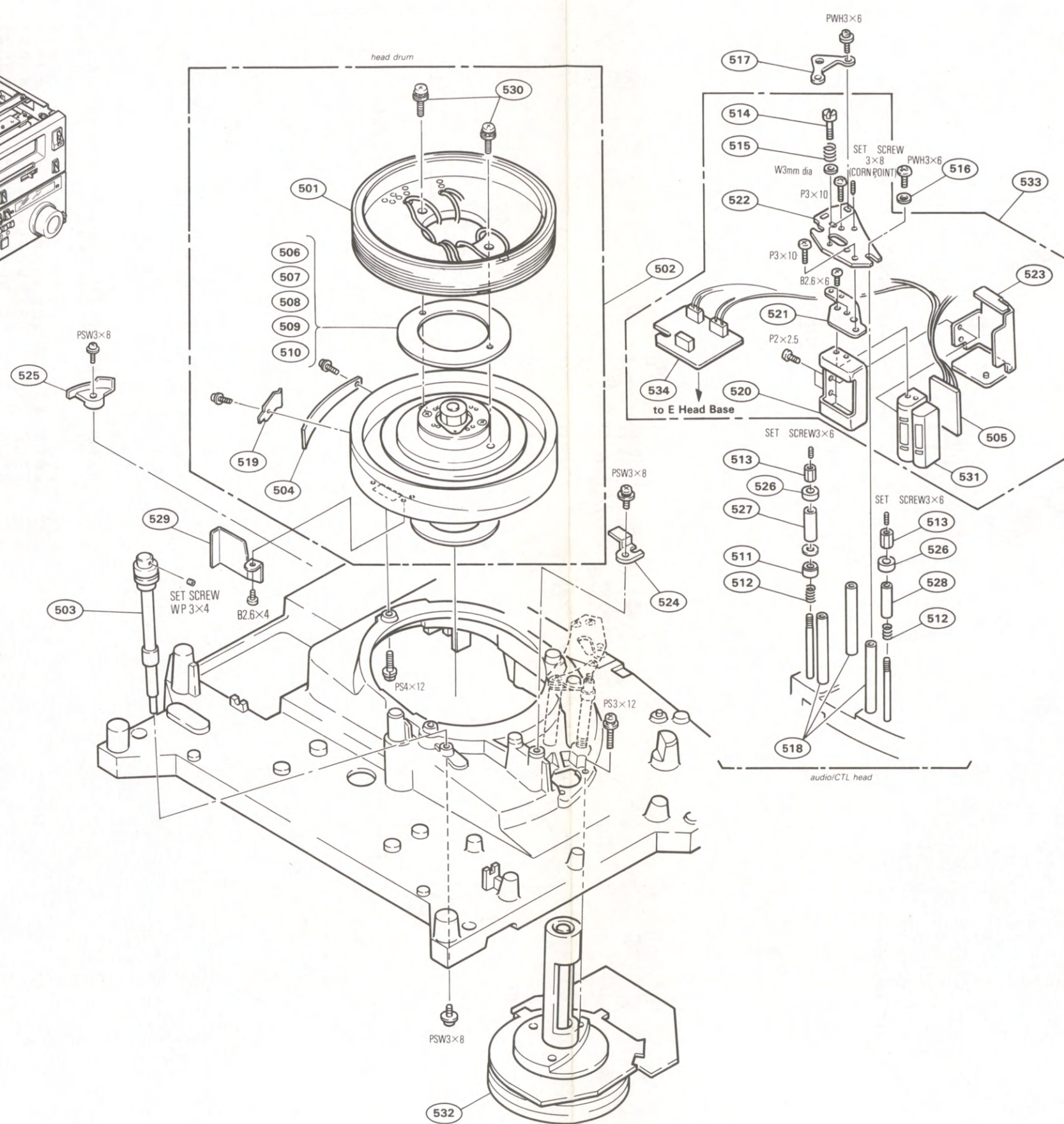
No.	Part No.	SP	Description
301	A-6750-219-A	s	BOX BLOCK ASS'Y, GEAR
302	A-6750-223-A	s	PINCH ROLLER BLOCK ASS'Y
303	A-6750-238-A	s	RING BLOCK ASSY, MAIN
304	X-3668-719-0	o	ROLLER ASS'Y, RING
305	X-3668-720-0	o	BASE ASS'Y, ROLLER, PRECEDING
306	X-3668-721-0	o	CHASSIS ASS'Y, GUIDE
307	X-3668-722-0	s	LOCKER ASS'Y, FR
308	X-3668-723-2	o	ARM ASS'Y, GUIDE, T CORRECTION
309	X-3668-724-3	s	SHAFT ASS'Y, ROLLER, PRECEDING
310	X-3668-733-0	s	SHAFT ASS'Y, SR GUIDE
311	X-3668-743-0	s	PULLEY ASS'Y, WORM
312	X-3672-704-1	o	BRACKET ASS'Y, MOTOR
313	X-3672-710-1	o	RING (UPPER) ASS'Y, SUB
314	X-3672-711-1	o	RING (LOWER) ASS'Y, SUB
315	X-3672-718-2	s	SHAFT ASS'Y, GUIDE
316	X-3718-303-2	s	GUIDE ASS'Y (T), TAPE
317	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
318	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
319	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
320	3-143-067-00	s	SPRING, TENSION
321	3-437-289-00	s	SPRING, TENSION
322	3-634-196-00	s	SPRING
323	3-668-743-00	o	NUT, PLATE, ROLLER, PRECEDING
324	3-668-745-00	s	SPRING
325	3-668-749-02	o	ARM (A), GUIDE, T CORRECTION
326	3-668-753-00	o	PLATE, ADJUSTMENT, FR LOCKER
327	3-668-754-00	o	SHAFT, GUIDE ARM, T CORRECTION
328	3-668-755-00	o	PLATE, STOPPER, SR
329	3-668-888-00	o	COVER, PINCH
330	3-668-889-00	o	CAP, PINCH ROLLER
331	3-668-900-00	o	BRACKET, T SENSOR
332	3-668-901-00	s	HOLDER, T PHOTO
333	3-668-919-00	s	ROLLER, SR GUIDE
334	3-668-947-00	s	PINION, L
335	3-668-948-00	o	SHAFT, WORM
336	3-668-963-03	s	ROLLER, RING
337	3-669-926-01	s	WASHER (3), THRUST
338	3-669-960-00	o	RETAINER, SHAFT
339	3-672-736-01	s	PULLEY, LM
340	3-672-737-01	s	BELT, SQUARE
341	3-672-738-01	o	PLATE, GROUND, SLED
342	3-672-739-01	o	BELT, LM SHIELD
343	3-672-790-01	o	BRACKET, FR DETECTION
344	3-701-437-21	s	WASHER, POLY 2MM DIA., 0.50T
345	3-701-438-11	s	WASHER, POLY 2.5MM DIA., 0.25T
346	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
347	3-701-505-00	s	SET SCREW, DUBLE POINT 3x3
348	3-703-074-00	s	CAP 3, SHAFT
349	3-703-075-00	s	CAP 2, SHAFT
350	1-541-376-11	s	MOTOR, DC (DNR-4700A)

THREADING ARM



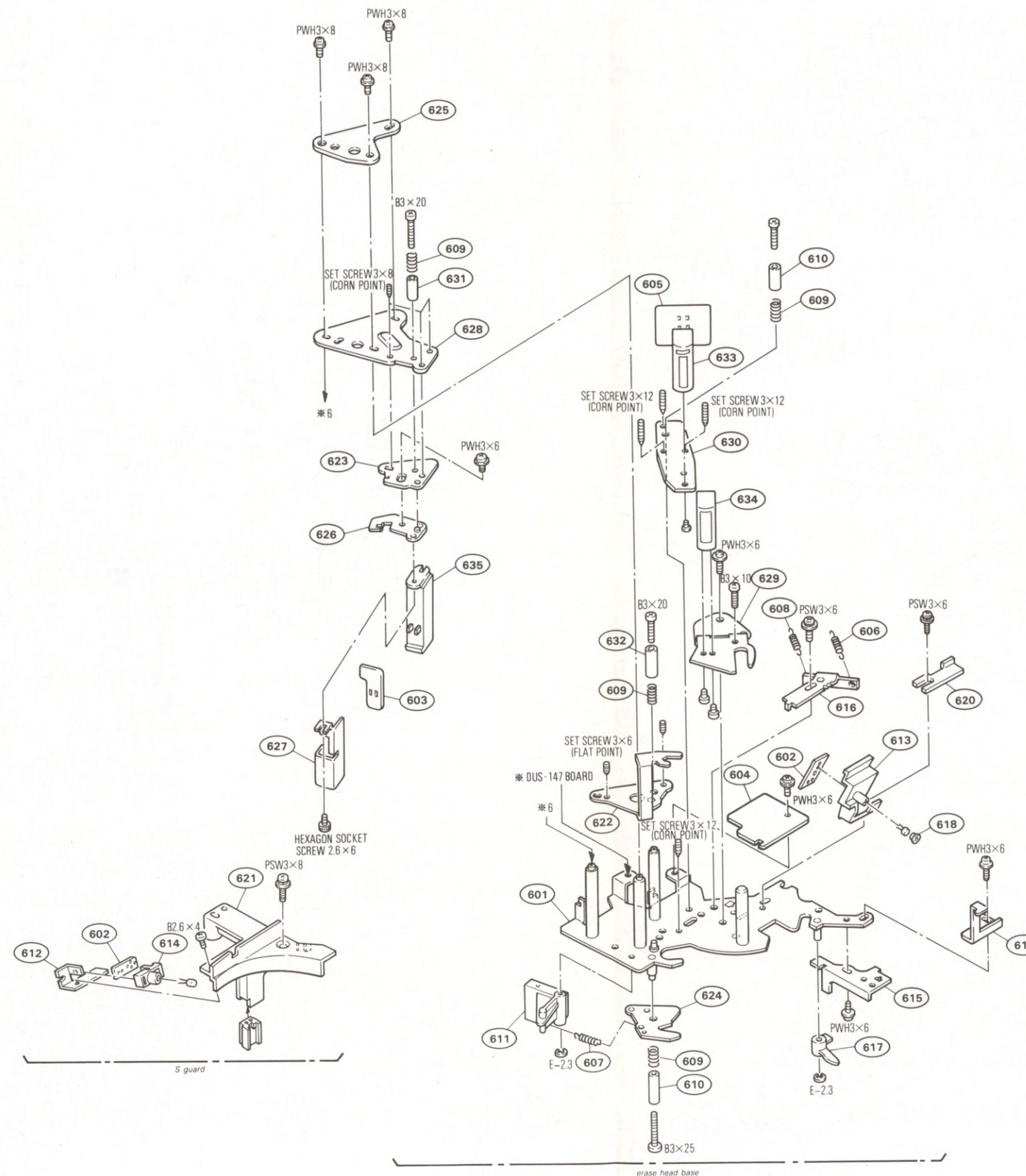
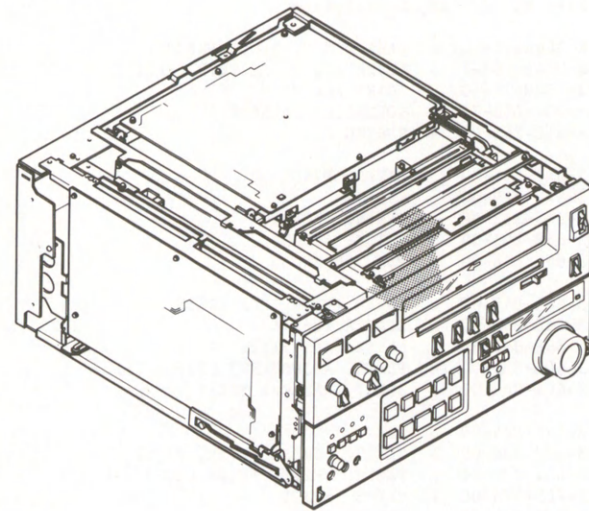
No.	Part No.	SP	Description
401	A-6746-034-A	s	ROLLER BLOCK ASS'Y (2), DRAWER
402	A-6746-045-A	s	ROLLER BLOCK ASS'Y, T GUIDE
403	A-6746-057-A	s	ROLLER BLOCK ASS'Y, S DRAWER
404	A-6750-202-A	o	LEVER BLOCK ASS'Y, DRAWER
405	A-6750-218-A	o	ARM BLOCK ASS'Y, T DRAWER
406	A-6750-225-E	o	ARM BLOCK, ASS'Y, DRAWER, S
407	X-3668-712-3	s	SHAFT (2) ASS'Y, ROLLER
408	X-3668-713-0	o	LINK (B) ASS'Y, DRIVING
409	X-3668-716-0	s	SHAFT (3) ASS'Y, ROLLER
410	X-3668-718-0	s	GUIDE ASS'Y, TAPE
411	X-3668-727-0	o	GUIDE ASS'Y, TAPE
412	X-3668-729-0	s	LEVER ASS'Y, DRAWER
413	X-3672-705-1	o	PLATE ASS'Y, GUIDE, T
414	X-3672-706-1	o	BASE ASS'Y, S DRAWER ARM
415	X-3672-708-1	o	ARM ASS'Y, T DRAWER
416	X-3718-305-1	o	RETAINER ASS'Y, ARM, T DRAWER
417	X-3718-615-2	o	ARM ASS'Y, DRAWER, S
418	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
419	3-534-854-00	s	SPRING, COMPRESSION
420	3-540-506-00	s	SPRING, TENSION
421	3-668-718-00	s	RETAINER, SPRING, S DRAWER
422	3-668-719-00	s	HOLDER (L), S GUIDE
423	3-668-721-00	s	ARM, S DRIVING
424	3-668-724-00	o	FLANGE (2), LOWER
425	3-668-734-00	o	SPRING
426	3-668-735-00	s	RETAINER, SPRING
427	3-668-760-00	o	SHAFT, DRAWER LEVER
428	3-669-946-00	s	RING (P4), O
429	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.13T
430	3-703-074-00	s	CAP 3, SHAFT
431	3-718-701-02	s	HOLDER (M), S GUIDE
432	3-718-773-01	s	SPRING, COMPRESSION
433	3-734-304-01	o	LIMITER, S DRAWER

DRUM AND CAPSTAN BLOCKS

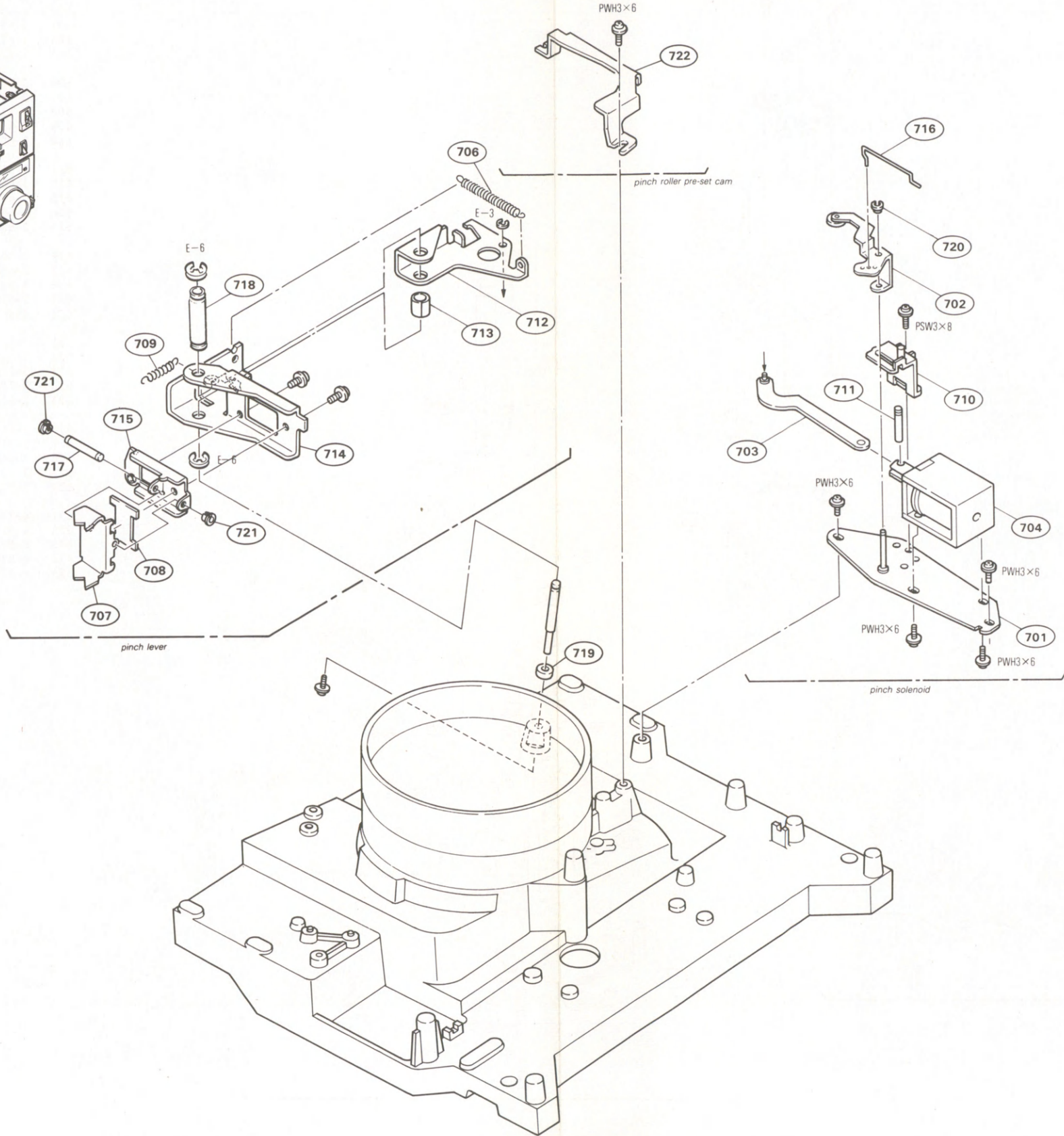
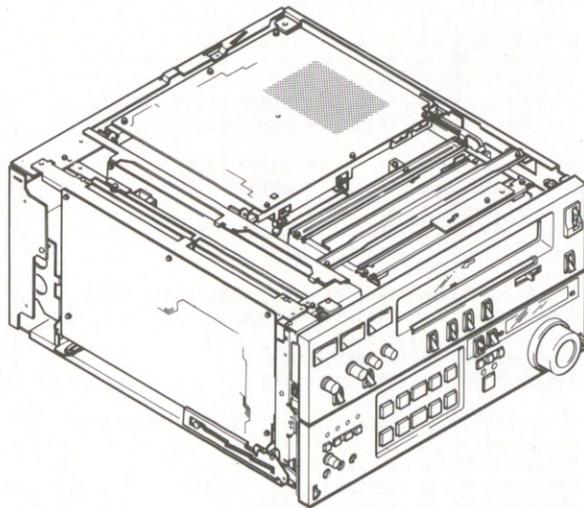


No.	Part No.	SP	Description
501	A-6709-615-A	s	UPPER DRUM ASS'Y, DUR-43-R
502	A-6709-674-A	s	HEAD DRUM ASS'Y, DUH-43B-R
503	A-6746-054-A	s	ROLLER ASS'Y, GUIDE, TAPE
504	1-586-633-00	s	DETECTOR, DEW
505	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
506	3-630-029-01	s	SPACER, FLANGE (0.01T)
507	3-630-029-11	s	SPACER, FLANGE (0.02T)
508	3-630-029-21	s	SPACER, FLANGE (0.05T)
509	3-630-029-31	s	SPACER, FLANGE (0.1T)
510	3-630-029-41	s	SPACER, FLANGE (0.03T)
511	3-641-612-00	s	GUIDE, TAPE
512	3-641-615-00	s	SPRING, COMPRESSION
513	3-641-616-00	s	NUT, TAPE GUIDE ADJUSTMENT
514	3-641-621-00	o	SCREW, HEAD ADJUSTMENT
515	3-641-622-00	s	SPRING, COMPRESSION
516	3-645-076-00	o	WASHER, M-REEL S
517	3-647-815-00	o	PLATE, ADJUSTMENT, CTL HEAD
518	3-647-816-00	o	POLE, SUPPORT, CTL BRACKET
519	3-655-631-00	o	TERMINAL, GROUND
520	3-655-675-02	o	CASE (F), AU
521	3-655-676-01	o	BRACKET (A), CTL HEAD
522	3-655-677-01	o	BRACKET (B), CTL HEAD
523	3-655-678-03	o	CASE (B), AU
524	3-660-102-00	s	GUIDE, TAPE
525	3-672-762-01	o	PIN, DRUM
526	3-672-763-01	o	CAM, P OFFSET PREVENTION
527	3-688-807-01	s	FLANGE, TAPE GUIDE
528	3-718-388-01	s	GUIDE (TG-4N), TAPE
529	3-733-655-01	o	SHIELD, RPCN
530	7-682-563-04	s	SCREW +B4x12
531	8-825-578-22	s	HEAD, ACE
532	8-835-258-02	s	MOTOR, DC BHF-1915B
533	A-6736-071-B	o	HEAD BLOCK ASS'Y, AUDIO
534	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147

ERASE HEAD BASE

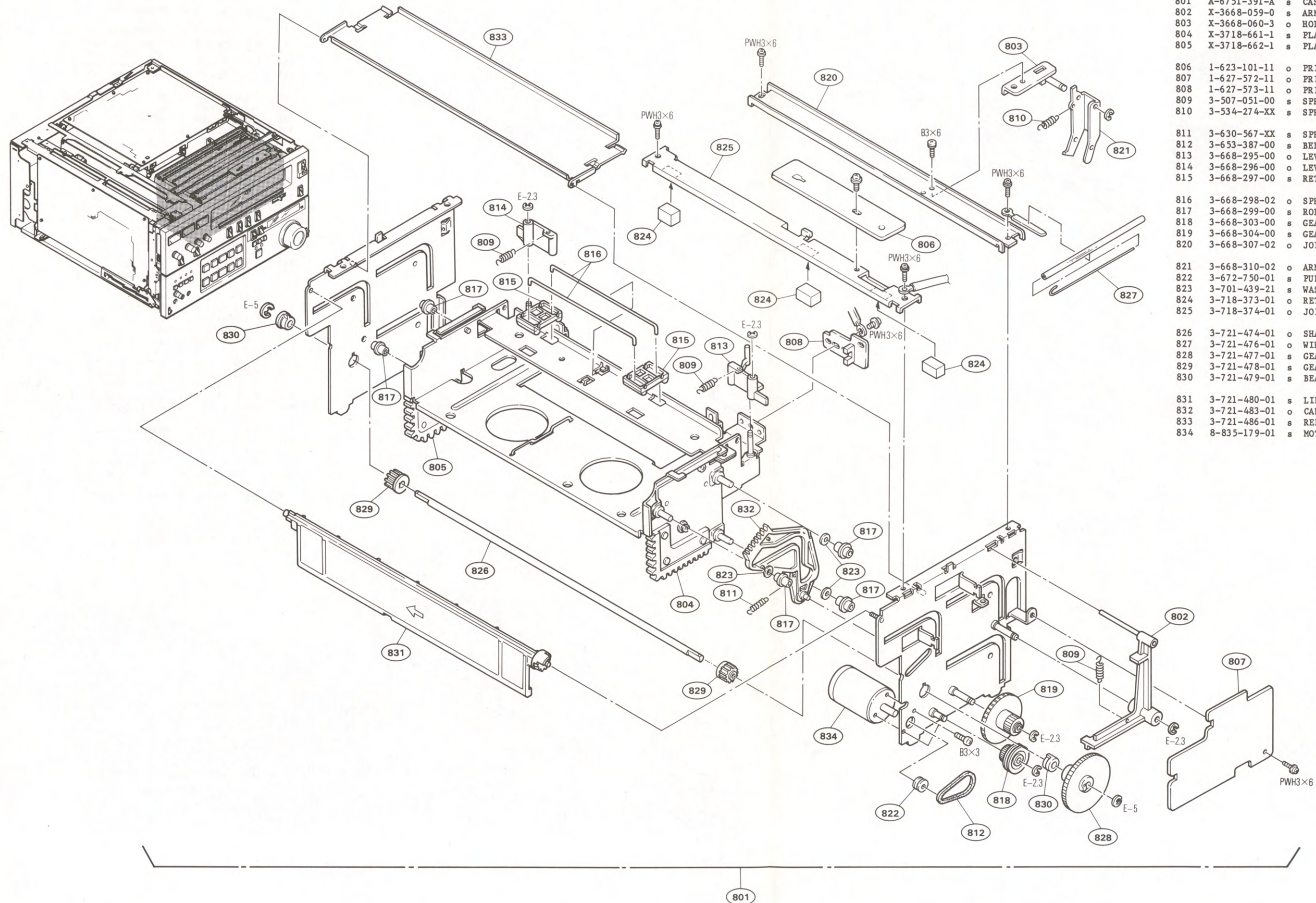


PINCH LEVER AND PINCH SOLENOID BLOCKS



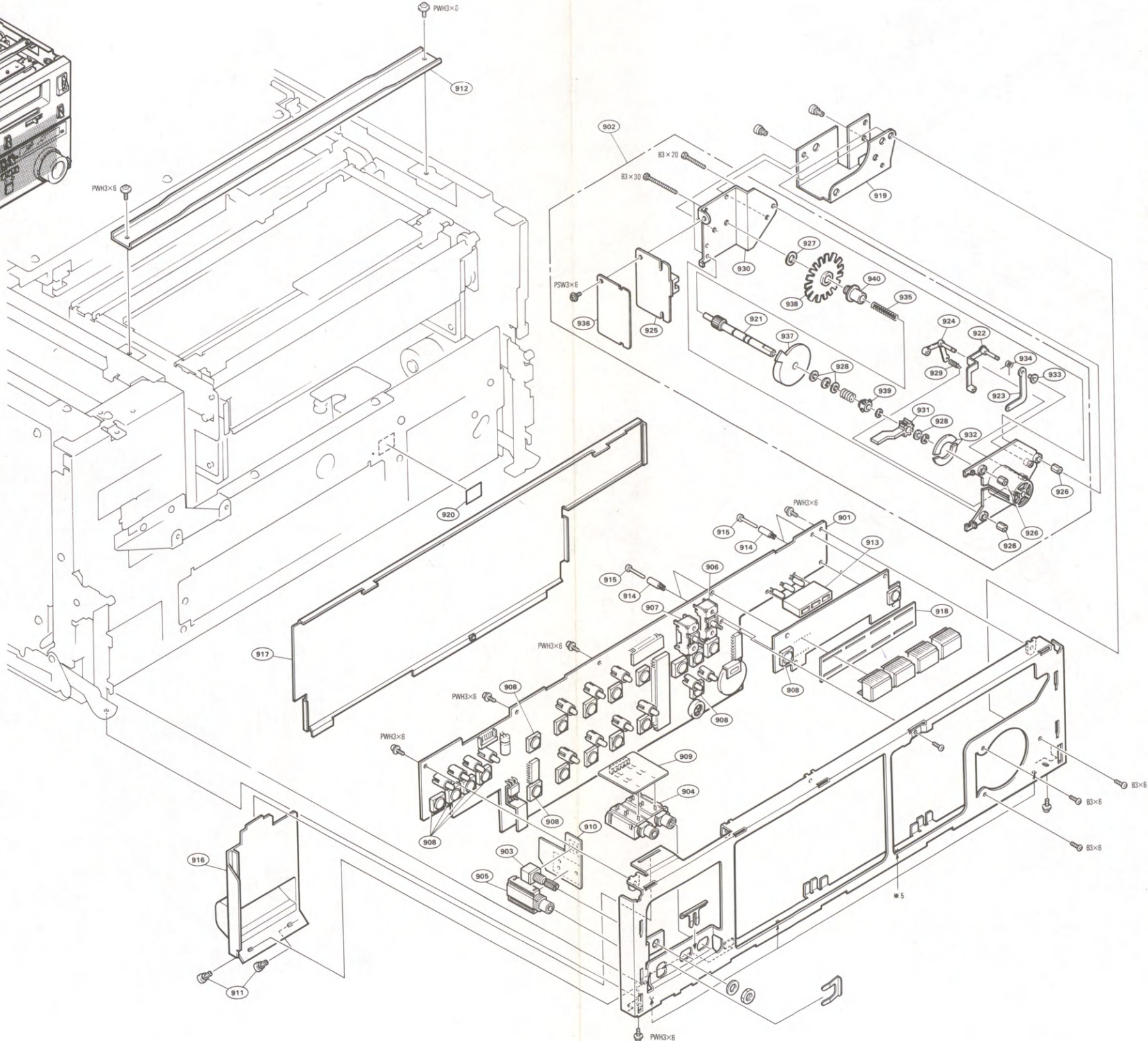
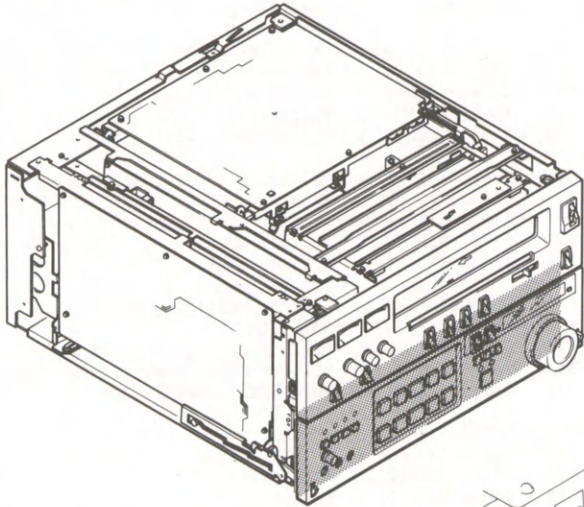
No.	Part No.	SP	Description
701	X-3668-734-0	o	BASE ASS'Y, PINCH PRESS
702	X-3668-735-3	s	LEVER ASS'Y, RESERVE PRESS
703	X-3668-736-0	o	JOINT ASS'Y
704	1-454-416-31	s	SOLENOID, PLUNGER
706	3-610-265-02	s	SPRING
707	3-642-518-00	o	LEVER, PINCH
708	3-642-519-00	o	SPRING
709	3-645-392-00	s	SPRING, TENSION
710	3-668-863-00	s	GUIDE, ARBOR
711	3-668-864-00	s	PIN, SOLENOID
712	3-668-865-00	o	LEVER (B), PINCH PRESS
713	3-668-867-00	o	SPACER (8x9)
714	3-668-868-00	o	LEVER (A), PINCH PRESS
715	3-668-883-00	o	PLATE, ADJUSTMENT, PINCH PRESS
716	3-668-884-03	o	JOINT, RESERVE PRESS
717	3-668-895-00	o	SHAFT
718	3-668-896-00	o	SLEEVE, PRESS LEVER, PINCH
719	3-672-733-01	o	TABLE, SHAFT, PRESS LEVER
720	3-703-074-00	s	CAP 3, SHAFT
721	3-703-075-00	s	CAP 2, SHAFT
722	3-718-777-02	o	DECK, RESERVE PRESS

CASSETTE-UP COMPARTMENT BLOCK



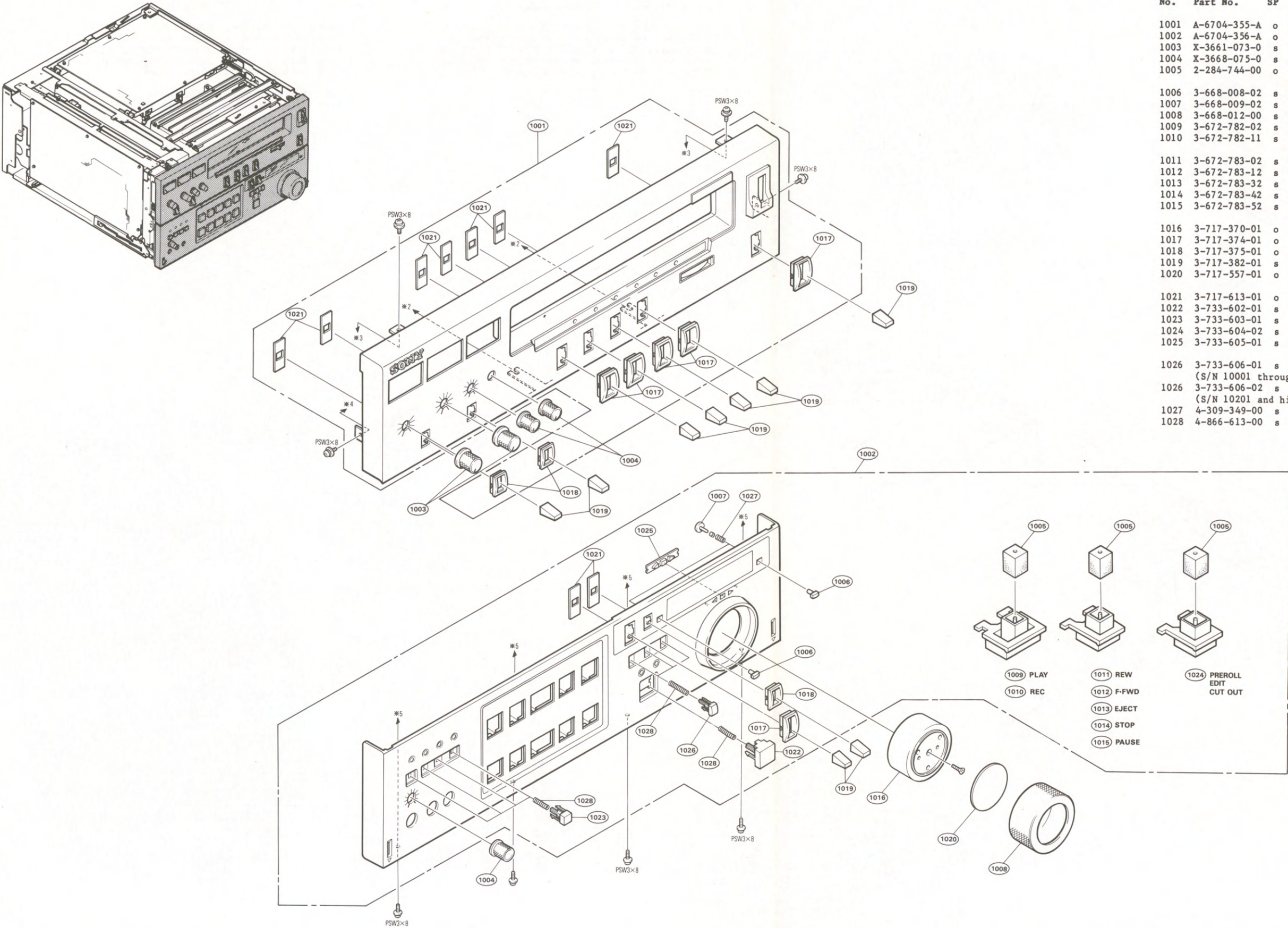
No.	Part No.	SP	Description
801	A-6751-391-A	s	CASSETTE-UP BLOCK ASS'Y
802	X-3668-059-0	s	ARM ASS'Y, SWITCH, DOWN
803	X-3668-060-3	o	HOLDER ASS'Y, ARM
804	X-3718-661-1	s	PLATE (RIGHT) ASS'Y, RACK
805	X-3718-662-1	s	PLATE (LEFT) ASS'Y, RACK
806	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
807	1-627-572-11	o	PRINTED CIRCUIT BOARD, CC-36
808	1-627-573-11	o	PRINTED CIRCUIT BOARD, CC-37
809	3-507-051-00	s	SPRING, TENSION
810	3-534-274-XX	s	SPRING, TENSION (22T)
811	3-630-567-XX	s	SPRING, TENSION (20T)
812	3-653-387-00	s	BELT, LM
813	3-668-295-00	o	LEVER (RIGHT), CASSETTE PUSH-OUT
814	3-668-296-00	o	LEVER (LEFT), CASSETTE PUSH-OUT
815	3-668-297-00	s	RETAINER, CASSETTE
816	3-668-298-02	o	SPRING
817	3-668-299-00	s	ROLLER, GUIDE
818	3-668-303-00	s	GEAR (A)
819	3-668-304-00	s	GEAR (B)
820	3-668-307-02	o	JOINT (R), LEFT & RIGHT
821	3-668-310-02	o	ARM, LID OPEN
822	3-672-750-01	s	PULLEY, MOTOR
823	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
824	3-718-373-01	o	RETAINER, LID
825	3-718-374-01	o	JOINT (F), LEFT & RIGHT
826	3-721-474-01	o	SHAFT, DRIVER
827	3-721-476-01	o	WIRE, FIXED
828	3-721-477-01	s	GEAR (C)
829	3-721-478-01	s	GEAR (D)
830	3-721-479-01	s	BEARING (6)
831	3-721-480-01	s	LID, CASSETTE
832	3-721-483-01	o	CAM, LID OPEN
833	3-721-486-01	s	REFLECTOR
834	8-835-179-01	s	MOTOR, DC MCB2B15

FUNCTION CONTROL



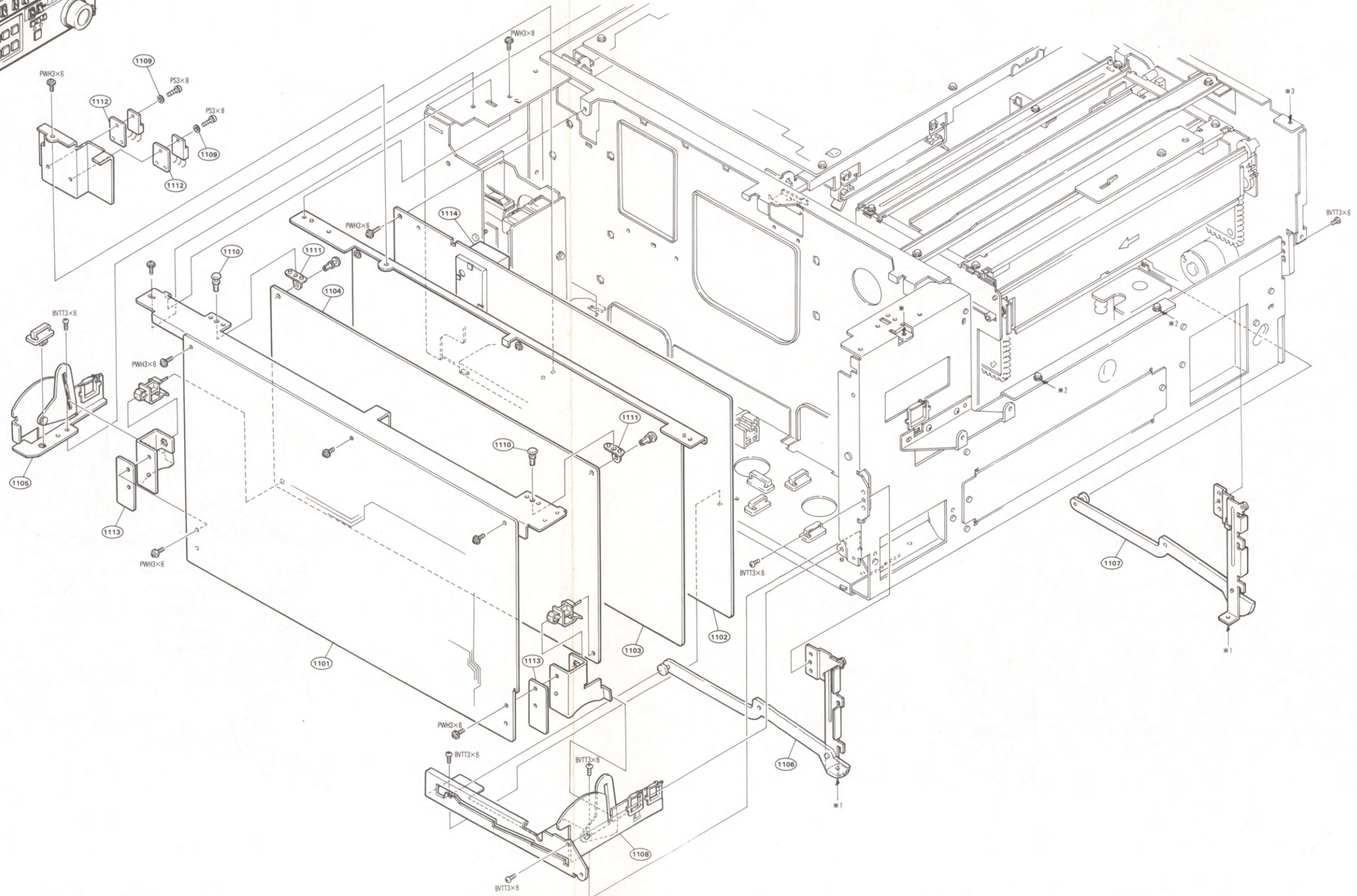
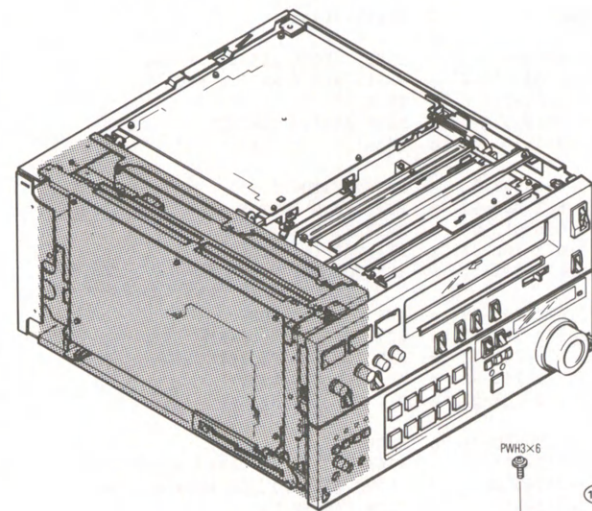
No.	Part No.	SP	Description
901	A-6717-525-A	o	MOUNTED CIRCUIT BOARD, KY-159
902	A-6734-238-B	s	DIAL BLOCK ASS'Y, SEARCH
903	1-237-703-11	s	RES, VAR, CARBON 2K/2K
904	1-507-797-21	s	JACK, LARGE TYPE 2P
905	1-507-854-00	s	JACK, LARGE TYPE
906	1-516-961-00	s	SWITCH, LEVER SLIDE
907	1-516-995-00	s	SWITCH, LEVER SLIDE
908	1-552-539-00	s	SWITCH, KEY BOARD
909	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
910	1-629-477-11	o	PRINTED CIRCUIT BOARD, HP-42
911	3-531-576-01	s	RIVET
912	3-672-765-01	o	BRACKET, C
913	3-718-657-01	o	HOLDER, LED
914	3-733-617-01	s	HOLDER, BUZZER
915	3-733-618-01	s	PIN, BUZZER HOLDER
916	3-733-620-01	o	PROTECT, MC
917	3-733-645-01	o	PROTECTOR, KY
918	3-733-652-01	o	SPACER, 7 SEG
919	3-733-668-01	o	COVER, SD
920	3-703-848-01	o	LABEL (N), SUB CAUTION
921	X-3717-226-1	o	SHAFT SUB ASS'Y, MAIN
922	X-3717-227-1	o	ARM (RIGHT) ASS'Y, S10
923	X-3717-228-1	o	ARM (LEFT) ASS'Y, S10
924	X-3717-229-1	o	ARM ASS'Y, RETURN
925	1-622-638-11	o	PRINTED CIRCUIT BOARD, PTC-32
926	2-280-622-11	o	SUPPORT (M3), HEXAGON
927	3-662-048-00	s	WASHER, BRACKET
928	3-701-443-21	s	WASHER, POLY 5MM DIA., 0.5T
929	3-701-788-XX	s	SPRING, TENSION (15T)
930	3-717-315-01	o	PLATE, BOTTOM, SD
931	3-717-316-02	o	GUIDE, LOCK IN
932	3-717-317-01	o	PLATE, CLUTCH
933	3-717-318-01	o	BEARING, S10
934	3-717-319-01	o	SPRING, TORSION
935	3-717-320-01	o	SPRING, COMPRESSION
936	3-717-321-01	o	PROTECTOR, PTC
937	3-717-417-01	o	CAM
938	3-717-418-01	o	PLATE
939	3-717-546-01	o	GUIDE, LOCK OUT
940	3-717-553-01	o	BEARING, SD

FRONT PANEL AND KEY PANEL BLOCKS



No.	Part No.	SP	Description
1001	A-6704-355-A	o	PANEL BLOCK ASS'Y, FRONT
1002	A-6704-356-A	o	PANEL BLOCK ASS'Y, KEY
1003	X-3661-073-0	s	KNOB ASS'Y, CONTROL
1004	X-3668-075-0	s	KNOB ASS'Y, CONTROL
1005	2-284-744-00	o	CUSHION (B), KEY
1006	3-668-008-02	s	PUSH BUTTON (3x5)
1007	3-668-009-02	s	PIN, PUSH BOTTON
1008	3-668-012-00	s	RUBBER, DIAL KNOB
1009	3-672-782-02	s	KEY TOP (A) "PLAY"
1010	3-672-782-11	s	KEY TOP (A) "REC"
1011	3-672-783-02	s	KEY TOP (B) "REW"
1012	3-672-783-12	s	KEY TOP (B) "F FWD"
1013	3-672-783-32	s	KEY TOP (B) "EJECT"
1014	3-672-783-42	s	KEY TOP (B) "STOP"
1015	3-672-783-52	s	KEY TOP (B) "PAUSE"
1016	3-717-370-01	o	KNOB, DIAL
1017	3-717-374-01	o	FRAME (23x12), ORNAMENTAL, SW
1018	3-717-375-01	o	FRAME (18x12), ORNAMENTAL, SW
1019	3-717-382-01	s	KNOB, LEVER SW
1020	3-717-557-01	o	PLATE, KNOB
1021	3-717-613-01	o	PLATE, ORNAMENTAL, LSW
1022	3-733-602-01	s	KEY TOP (S)
1023	3-733-603-01	s	KEY TOP
1024	3-733-604-02	s	KEY TOP (PC)
1025	3-733-605-01	s	COVER, LED
1026	3-733-606-01	s	PUSH BUTTON (5x9)
1026	3-733-606-02	s	PUSH BUTTON (5x9)
1027	4-309-349-00	s	SPRING, COIL
1028	4-866-613-00	s	SPRING, COMPRESSION

CHASSIS BLOCK (1), LEFT SIDE



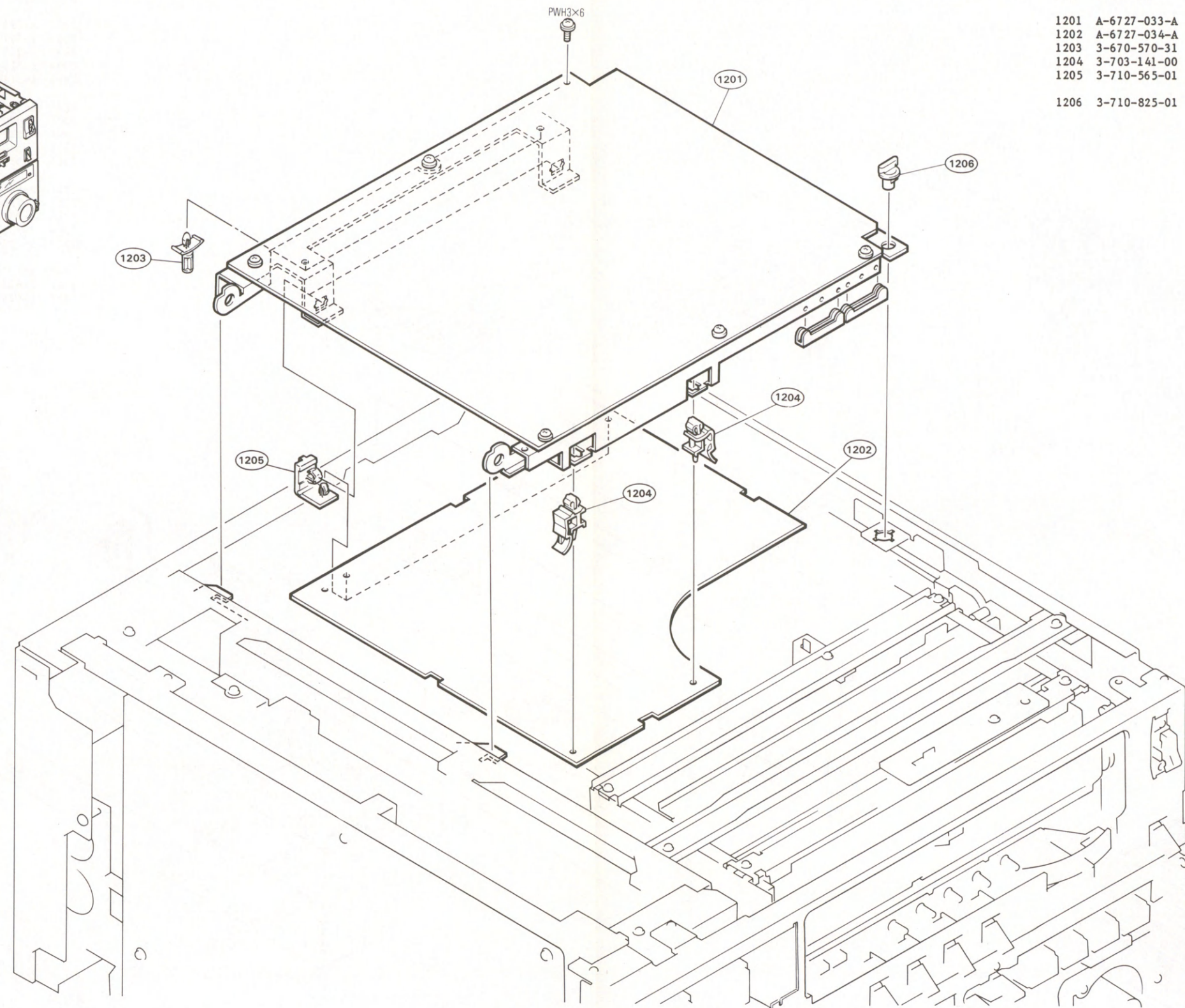
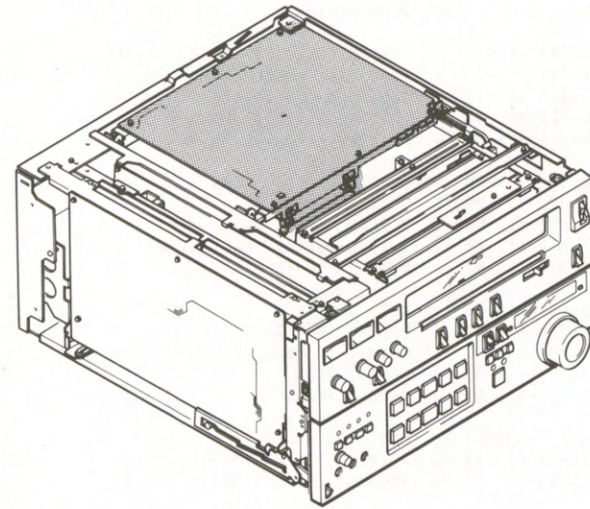
No. Part No. SP Description

1101	A-6713-362-A	o	MOUNTED CIRCUIT BOARD, AU-124
1102	A-6727-035-A	o	MOUNTED CIRCUIT BOARD, MD-59
1103	A-6727-037-A	o	MOUNTED CIRCUIT BOARD, SV-112
1104	A-6727-039-A	o	MOUNTED CIRCUIT BOARD, NR-31
1105	X-3733-601-1	o	PLATE (2) ASS'Y, SLIDE, AU

No. Part No. SP Description

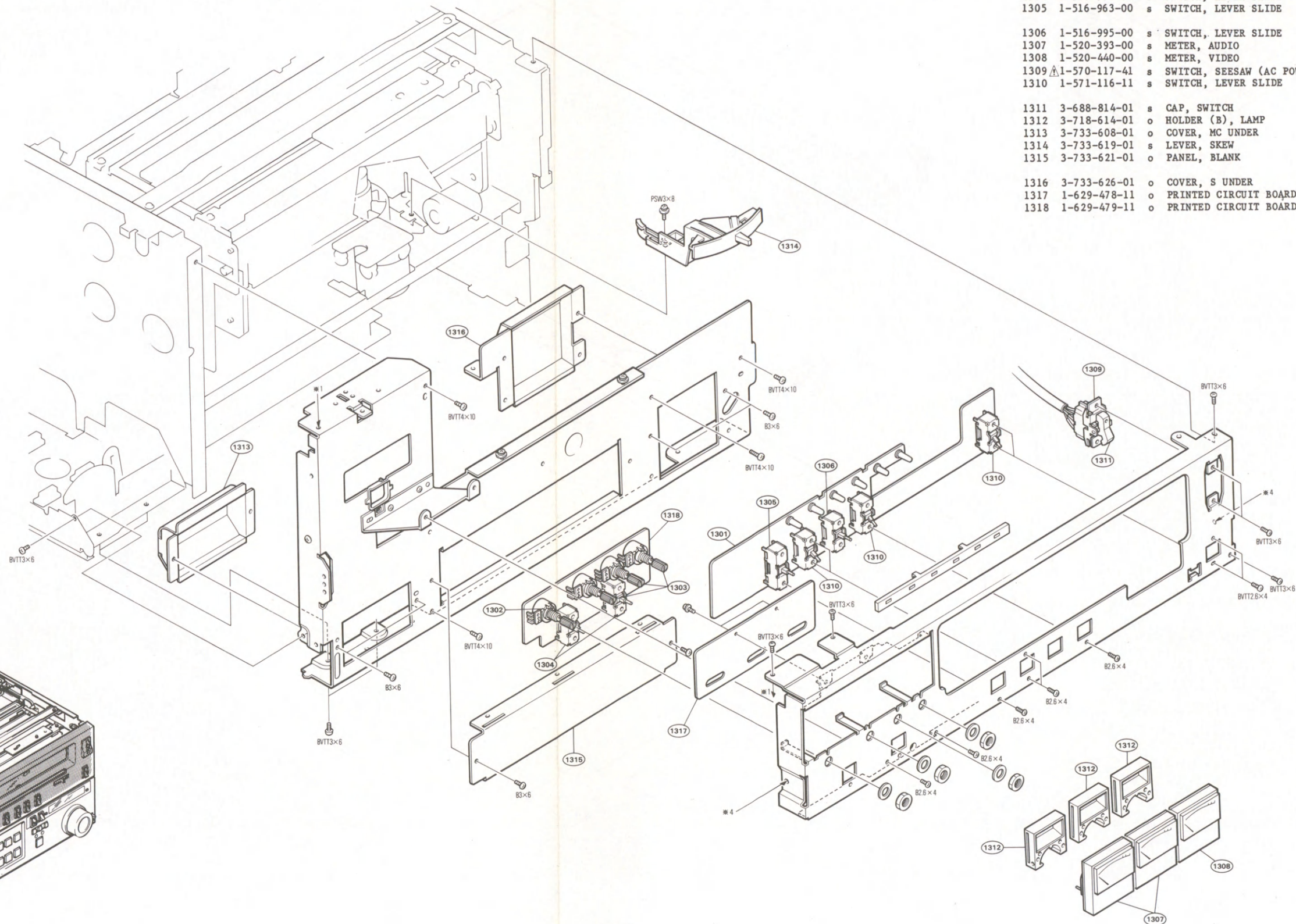
1106	X-3733-602-1	o	HINGE (LEFT) ASS'Y
1107	X-3733-603-1	o	HINGE (RIGHT) ASS'Y
1108	X-3733-604-1	o	PLATE (1) ASS'Y, SLIDE, AU
1109	2-371-561-00	s	BUSHING (P), INSULATING
1110	3-646-090-00	s	RIVET, NYLON
1111	3-657-153-00	o	HINGE
1112	3-703-037-00	s	INSULATOR, TO-220
1113	3-733-616-01	o	SHEET, INSULATING, AU
1114	3-733-657-01	o	SHIELD (LID), MD.

CHASSIS BLOCK (2), TOP



No.	Part No.	SP	Description
1201	A-6727-033-A	o	MOUNTED CIRCUIT BOARD, DM-69
1202	A-6727-034-A	o	MOUNTED CIRCUIT BOARD, DM-70
1203	3-670-570-31	o	SPACER, SUPPORT
1204	3-703-141-00	o	HOLDER, PCB
1205	3-710-565-01	o	HINGE, PC BOARD
1206	3-710-825-01	o	FASTENER, PLATE

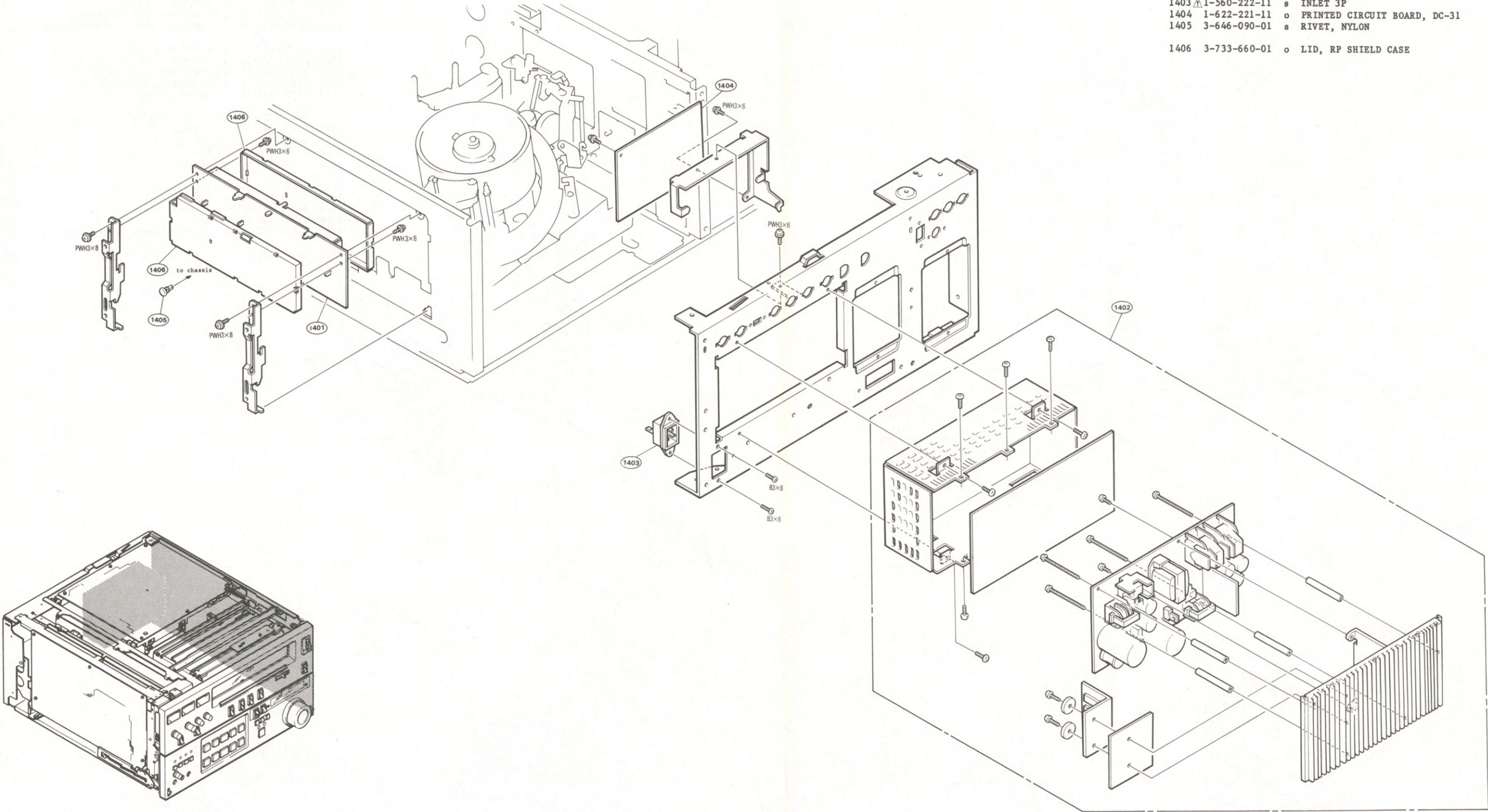
LEVEL CONTROL



No.	Part No.	SP	Description
1301	A-6729-839-A	o	MOUNTED CIRCUIT BOARD, SW-315
1302	1-237-713-11	s	RES, VAR, CARBON 100K
1303	1-249-410-11	s	RES, CARBON (SMALL) 270
1304	1-516-961-00	s	SWITCH, LEVER SLIDE
1305	1-516-963-00	s	SWITCH, LEVER SLIDE
1306	1-516-995-00	s	SWITCH, LEVER SLIDE
1307	1-520-393-00	s	METER, AUDIO
1308	1-520-440-00	s	METER, VIDEO
1309	A-1-570-117-41	s	SWITCH, SEESAW (AC POWER)
1310	1-571-116-11	s	SWITCH, LEVER SLIDE
1311	3-688-814-01	s	CAP, SWITCH
1312	3-718-614-01	o	HOLDER (B), LAMP
1313	3-733-608-01	o	COVER, MC UNDER
1314	3-733-619-01	s	LEVER, SKEW
1315	3-733-621-01	o	PANEL, BLANK
1316	3-733-626-01	o	COVER, S UNDER
1317	1-629-478-11	o	PRINTED CIRCUIT BOARD, MT-53
1318	1-629-479-11	o	PRINTED CIRCUIT BOARD, VR-80

CHASSIS BLOCK (3), RIGHT SIDE AND REAR

No.	Part No.	SP	Description
1401	A-6727-036-A	o	MOUNTED CIRCUIT BOARD, RP-40
1402	1-413-069-00	s	SWITCHING REGULATOR (UR-01)
1403	1-560-222-11	s	INLET 3P
1404	1-622-221-11	o	PRINTED CIRCUIT BOARD, DC-31
1405	3-646-090-01	s	RIVET, NYLON
1406	3-733-660-01	o	LID, RP SHIELD CASE

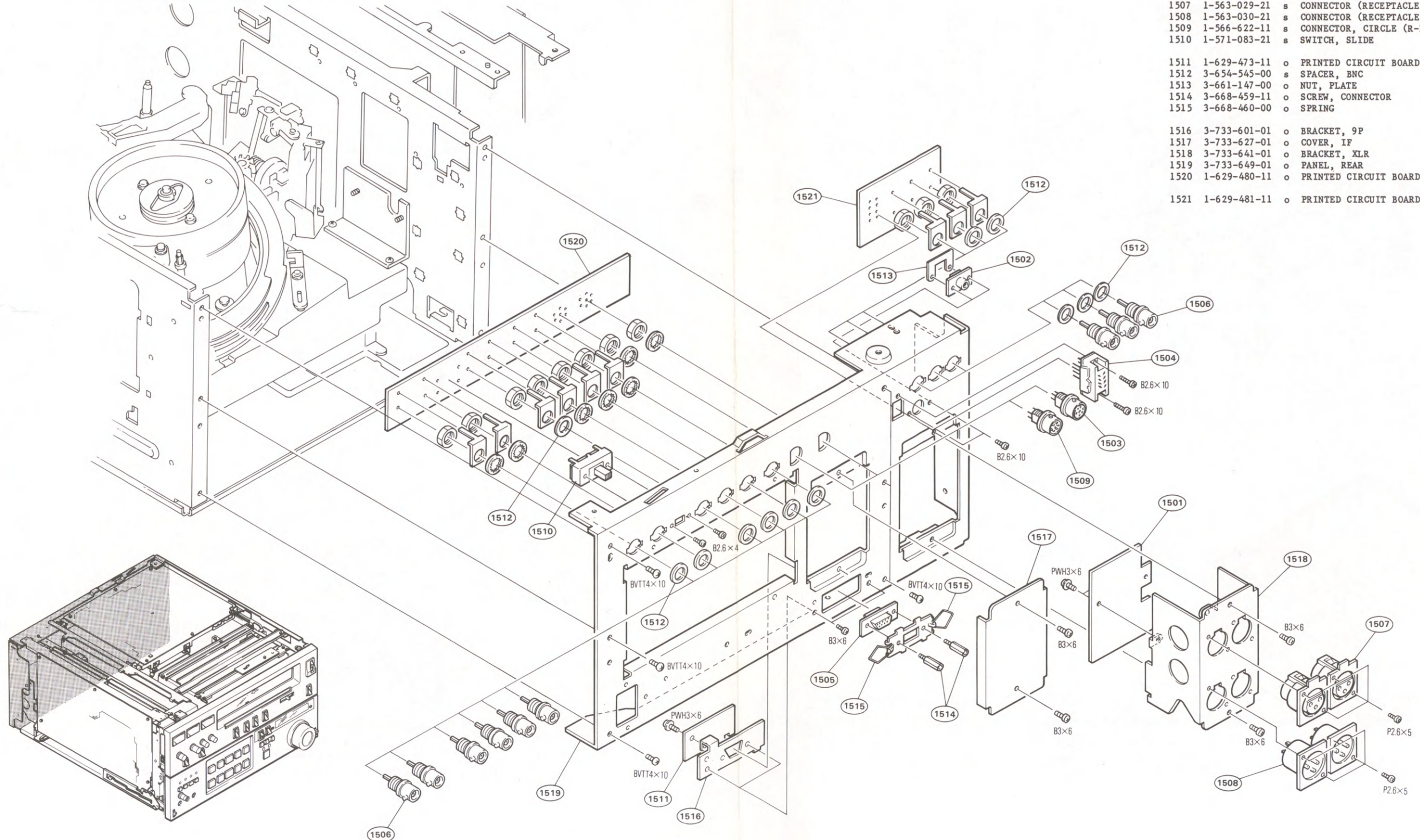


CONNECTOR PANEL

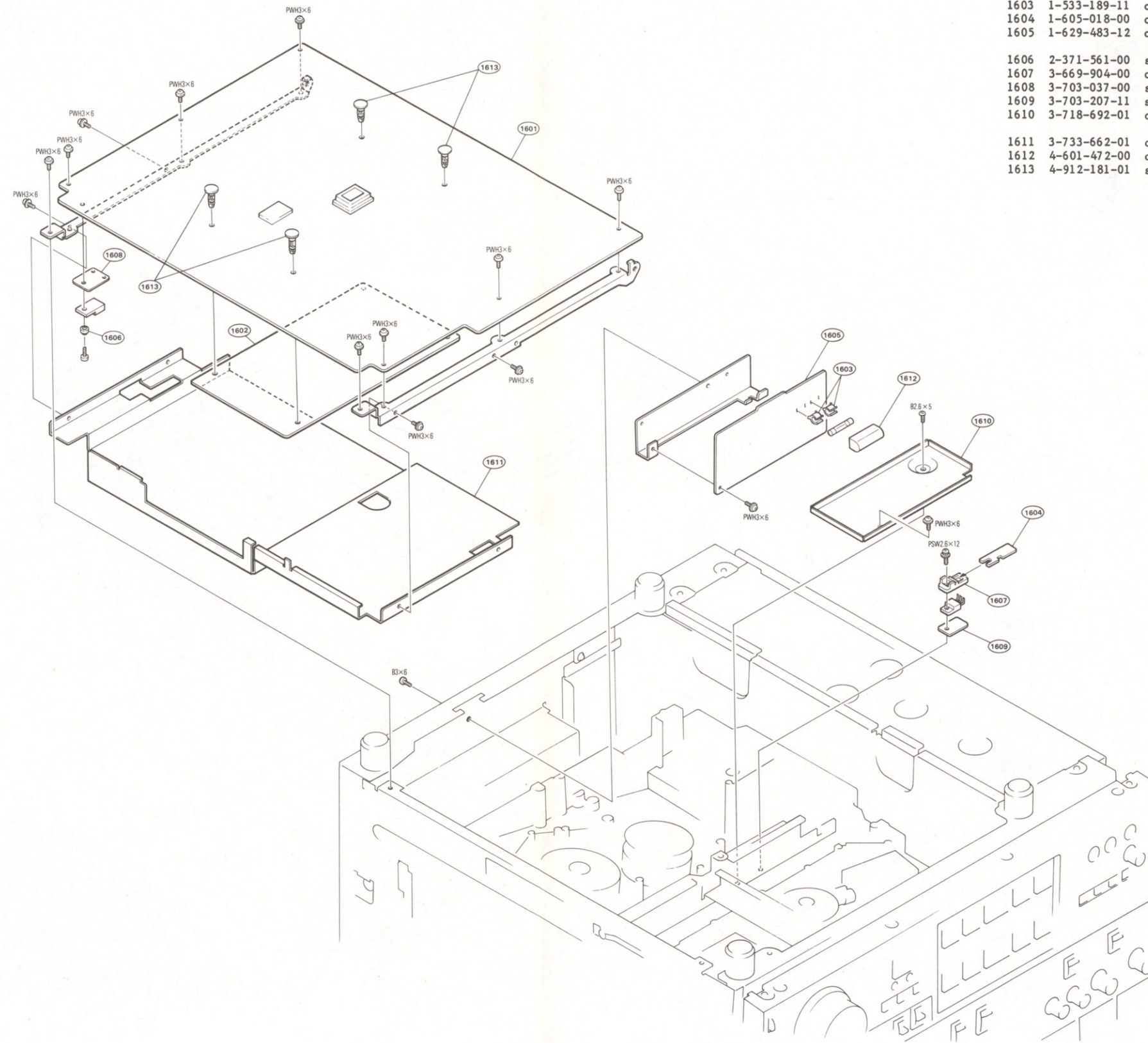
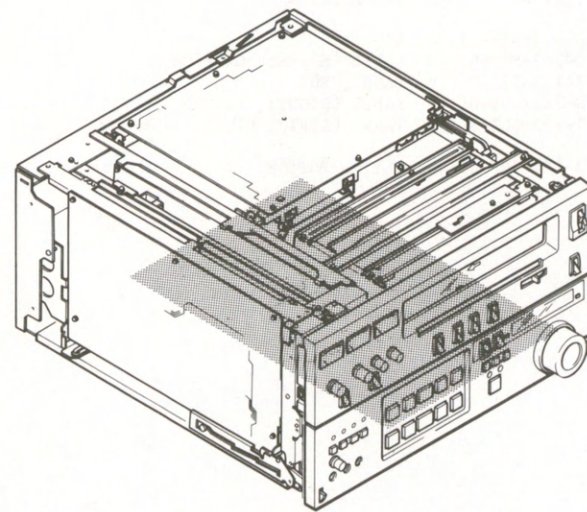
CONNECTOR PANEL

CONNECTOR PANEL

No.	Part No.	SP	Description
1501	A-6713-363-A	o	MOUNTED CIRCUIT BOARD, AA-16
1502	1-507-467-00	s	1P PIN JACK
1503	1-561-045-00	s	CONNECTOR, (R-F)
1504	1-561-577-21	s	CONNECTOR (DIP TYPE) 8P
1505	1-561-655-00	s	CONNECTOR SOCKET, MINIATURE 9P
1506	1-562-227-21	s	RECEPTACLE, BNC
1507	1-563-029-21	s	CONNECTOR (RECEPTACLE) 3P
1508	1-563-030-21	s	CONNECTOR (RECEPTACLE) 3P
1509	1-566-622-11	s	CONNECTOR, CIRCLE (R-M) 7P
1510	1-571-083-21	s	SWITCH, SLIDE
1511	1-629-473-11	o	PRINTED CIRCUIT BOARD, RM-66
1512	3-654-545-00	s	SPACER, BNC
1513	3-661-147-00	o	NUT, PLATE
1514	3-668-459-11	o	SCREW, CONNECTOR
1515	3-668-460-00	o	SPRING
1516	3-733-601-01	o	BRACKET, 9P
1517	3-733-627-01	o	COVER, IF
1518	3-733-641-01	o	BRACKET, XLR
1519	3-733-649-01	o	PANEL, REAR
1520	1-629-480-11	o	PRINTED CIRCUIT BOARD, DUS-271
1521	1-629-481-11	o	PRINTED CIRCUIT BOARD, CP-136



CHASSIS BLOCK (4), BOTTOM



No. Part No. SP Description

1601	A-6727-038-A	o	MOUNTED CIRCUIT BOARD, SY-141
1602	A-6727-040-A	o	MOUNTED CIRCUIT BOARD, BC-16
1603	1-533-189-11	o	HOLDER, FUSE
1604	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
1605	1-629-483-12	o	PRINTED CIRCUIT BOARD, AC-94

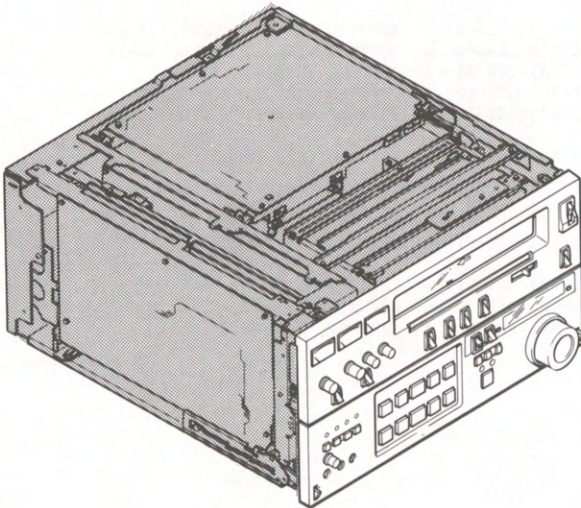
1606	2-371-561-00	s	BUSHING (P), INSULATING
1607	3-669-904-00	o	HOLDER, PT
1608	3-703-037-00	s	INSULATOR, TO-220
1609	3-703-207-11	s	INSULATOR, TO-220
1610	3-718-692-01	o	RETAINER, V HARNESS

1611	3-733-662-01	o	SHIELD, SY
1612	4-601-472-00	o	COVER, FUSE
1613	4-912-181-01	s	SUPPORT, PC

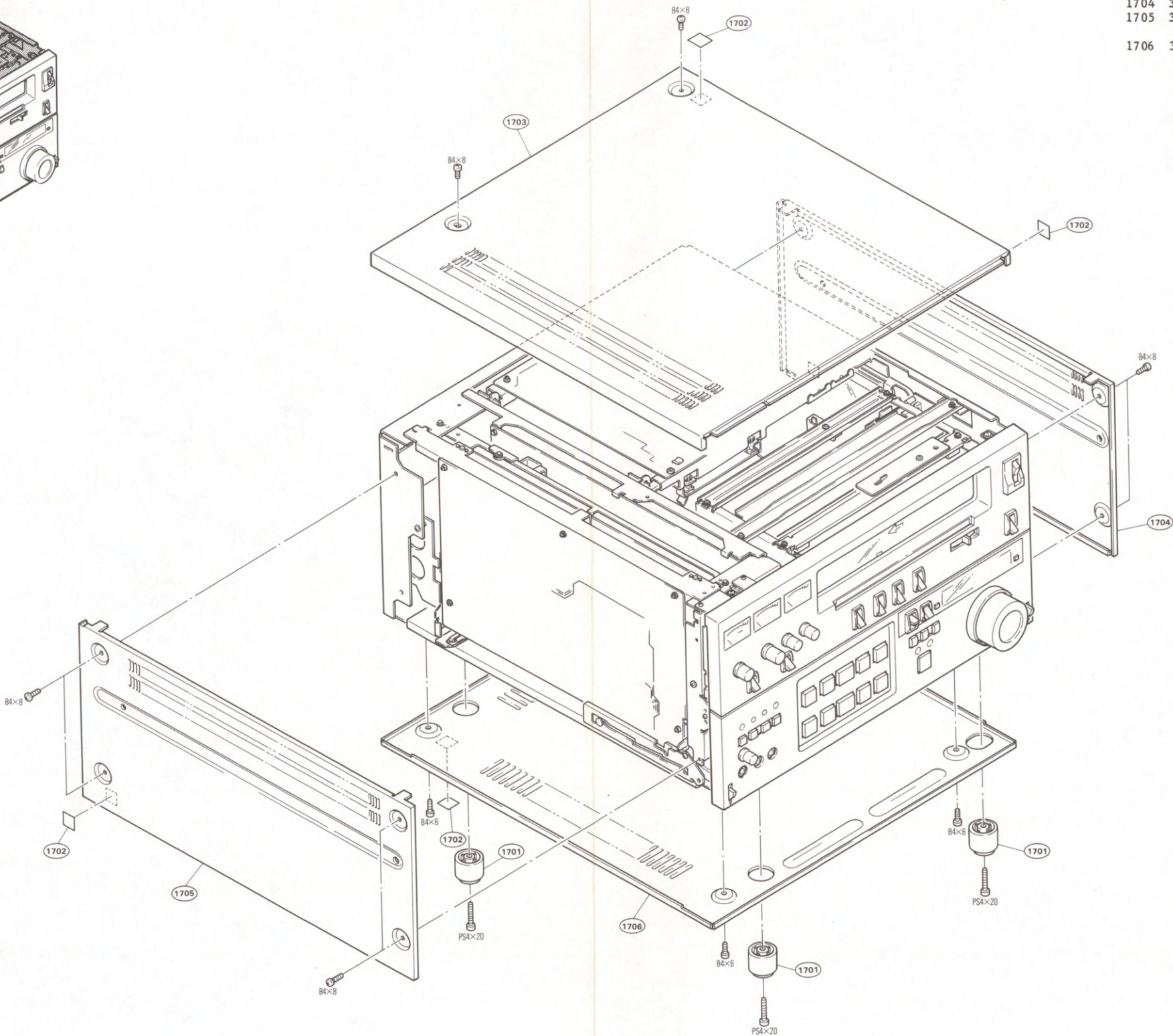
ORNAMENTAL PANEL

ORNAMENTAL PANEL

ORNAMENTAL PANEL



No.	Part No.	SP	Description
1701	3-642-656-01	o	LEG
1702	3-703-848-01	o	LABEL (N), SUB CAUTION
1703	3-733-635-01	o	PANEL, TOP
1704	3-733-636-01	o	PANEL (RIGHT), SIDE
1705	3-733-637-01	o	PANEL (LEFT), SIDE
1706	3-733-638-01	o	PLATE, BOTTOM



16-3. ELECTRICAL PARTS LIST

CAPACITOR, MYLAR

Part No.	SP Description
1-130-467-00	s CAP, MYLAR 470pF 5% 50V
1-130-468-00	s CAP, MYLAR 560pF 5% 50V
1-130-469-00	s CAP, MYLAR 680pF 5% 50V
1-130-470-00	s CAP, MYLAR 820pF 5% 50V
1-130-471-00	s CAP, MYLAR 1000pF 5% 50V
1-130-472-00	s CAP, MYLAR 1200pF 5% 50V
1-130-473-00	s CAP, MYLAR 1500pF 5% 50V
1-130-474-00	s CAP, MYLAR 1800pF 5% 50V
1-130-475-00	s CAP, MYLAR 2200pF 5% 50V
1-130-476-00	s CAP, MYLAR 2700pF 5% 50V
1-130-477-00	s CAP, MYLAR 3300pF 5% 50V
1-130-478-00	s CAP, MYLAR 3900pF 5% 50V
1-130-479-00	s CAP, MYLAR 4700pF 5% 50V
1-130-480-00	s CAP, MYLAR 5600pF 5% 50V
1-130-481-00	s CAP, MYLAR 6800pF 5% 50V
1-130-482-00	s CAP, MYLAR 8200pF 5% 50V
1-130-483-00	s CAP, MYLAR 0.01 5% 50V
1-130-484-00	s CAP, MYLAR 0.012 5% 50V
1-130-485-00	s CAP, MYLAR 0.015 5% 50V
1-130-486-00	s CAP, MYLAR 0.018 5% 50V
1-130-487-00	s CAP, MYLAR 0.022 5% 50V
1-130-488-00	s CAP, MYLAR 0.027 5% 50V
1-130-489-00	s CAP, MYLAR 0.033 5% 50V
1-130-490-11	s CAP, MYLAR 0.039 5% 50V
1-130-491-00	s CAP, MYLAR 0.047 5% 50V
1-130-492-11	s CAP, MYLAR 0.056 5% 50V
1-130-493-00	s CAP, MYLAR 0.068 5% 50V
1-130-494-11	s CAP, MYLAR 0.082 5% 50V
1-130-495-00	s CAP, MYLAR 0.1 5% 50V
1-130-496-00	s CAP, MYLAR 0.12 5% 50V
1-130-497-00	s CAP, MYLAR 0.15 5% 50V
1-130-498-00	s CAP, MYLAR 0.18 5% 50V
1-130-499-00	s CAP, MYLAR 0.22 5% 50V
1-136-502-11	s CAP, MYLAR 0.33 5% 50V

CAPACITOR, MICA, SILVERED

Part No.	SP Description
1-107-019-00	s CAP, MICA 1.0pF +-0.5pF 500V
1-107-039-00	s CAP, MICA 1.2pF +-0.5pF 500V
1-107-040-00	s CAP, MICA 1.5pF +-0.5pF 500V
1-107-041-00	s CAP, MICA 1.8pF +-0.5pF 500V
1-107-042-00	s CAP, MICA 2.2pF +-0.5pF 500V
1-107-043-00	s CAP, MICA 2.7pF +-0.5pF 500V
1-107-044-00	s CAP, MICA 3.3pF +-0.5pF 500V
1-107-045-00	s CAP, MICA 3.9pF +-0.5pF 500V
1-107-046-00	s CAP, MICA 4.7pF +-0.5pF 500V
1-107-026-00	s CAP, MICA 5.1pF +-0.5pF 500V
1-107-047-00	s CAP, MICA 5.6pF +-0.5pF 500V
1-107-048-00	s CAP, MICA 6.8pF +-0.5pF 500V
1-107-049-00	s CAP, MICA 8.2pF +-0.5pF 500V
1-107-202-00	s CAP, MICA 10pF 5% 500V
1-107-203-00	s CAP, MICA 11pF 5% 500V
1-107-204-00	s CAP, MICA 12pF 5% 500V
1-107-205-00	s CAP, MICA 13pF 5% 500V
1-107-206-00	s CAP, MICA 15pF 5% 500V
1-107-207-00	s CAP, MICA 16pF 5% 500V
1-107-208-00	s CAP, MICA 18pF 5% 500V
1-107-209-00	s CAP, MICA 20pF 5% 500V
1-107-210-00	s CAP, MICA 22pF 5% 500V
1-107-211-00	s CAP, MICA 24pF 5% 500V
1-107-157-00	s CAP, MICA 27pF 5% 500V
1-107-158-00	s CAP, MICA 30pF 5% 500V
1-107-159-00	s CAP, MICA 33pF 5% 500V
1-107-074-00	s CAP, MICA 36pF 5% 50V
1-107-075-00	s CAP, MICA 39pF 5% 50V
1-107-076-00	s CAP, MICA 43pF 5% 50V
1-107-077-00	s CAP, MICA 47pF 5% 50V
1-107-164-00	s CAP, MICA 51pF 5% 500V
1-107-165-00	s CAP, MICA 56pF 5% 500V
1-107-166-00	s CAP, MICA 62pF 5% 500V
1-107-036-00	s CAP, MICA 68pF 5% 500V
1-107-167-00	s CAP, MICA 75pF 5% 500V
1-107-083-00	s CAP, MICA 82pF 5% 50V
1-107-084-00	s CAP, MICA 91pF 5% 50V
1-107-085-00	s CAP, MICA 100pF 5% 50V
1-107-086-00	s CAP, MICA 110pF 5% 50V
1-107-087-00	s CAP, MICA 120pF 5% 50V
1-109-538-00	s CAP, MICA 130pF 5% 100V
1-109-539-00	s CAP, MICA 150pF 5% 100V
1-107-090-00	s CAP, MICA 160pF 5% 50V
1-109-540-00	s CAP, MICA 180pF 5% 100V
1-109-541-00	s CAP, MICA 200pF 5% 100V
1-109-542-00	s CAP, MICA 220pF 5% 100V
1-109-545-00	s CAP, MICA 270pF 5% 100V
1-109-547-00	s CAP, MICA 330pF 5% 100V
1-109-549-00	s CAP, MICA 390pF 5% 100V
1-109-633-00	s CAP, MICA 470pF 2% 500V
1-109-555-00	s CAP, MICA 560pF 5% 100V
1-109-635-00	s CAP, MICA 470pF 2% 500V

RESISTOR, CARBON

Part No. SP Description

1-249-381-11	s RES, CARBON	1.0	5%	1/4W
1-249-382-11	s RES, CARBON	1.2	5%	1/4W
1-249-383-11	s RES, CARBON	1.5	5%	1/4W
1-249-384-11	s RES, CARBON	1.8	5%	1/4W
1-249-385-11	s RES, CARBON	2.2	5%	1/4W
1-249-386-11	s RES, CARBON	2.7	5%	1/4W
1-249-387-11	s RES, CARBON	3.3	5%	1/4W
1-249-388-11	s RES, CARBON	3.9	5%	1/4W
1-249-389-11	s RES, CARBON	4.7	5%	1/4W
1-249-390-11	s RES, CARBON	5.6	5%	1/4W
1-249-391-11	s RES, CARBON	6.8	5%	1/4W
1-249-392-11	s RES, CARBON	8.2	5%	1/4W
1-249-393-11	s RES, CARBON	10	5%	1/4W
1-249-394-11	s RES, CARBON	12	5%	1/4W
1-249-395-11	s RES, CARBON	15	5%	1/4W
1-249-396-11	s RES, CARBON	18	5%	1/4W
1-249-397-11	s RES, CARBON	22	5%	1/4W
1-249-398-11	s RES, CARBON	27	5%	1/4W
1-249-399-11	s RES, CARBON	33	5%	1/4W
1-249-400-11	s RES, CARBON	39	5%	1/4W
1-249-401-11	s RES, CARBON	47	5%	1/4W
1-249-402-11	s RES, CARBON	56	5%	1/4W
1-249-403-11	s RES, CARBON	68	5%	1/4W
1-215-394-00	s RES, METAL	75	1%	1/4W
1-249-404-11	s RES, CARBON	82	5%	1/4W
1-249-405-11	s RES, CARBON	100	5%	1/4W
1-249-406-11	s RES, CARBON	120	5%	1/4W
1-249-407-11	s RES, CARBON	150	5%	1/4W
1-249-408-11	s RES, CARBON	180	5%	1/4W
1-249-409-11	s RES, CARBON	220	5%	1/4W
1-249-410-11	s RES, CARBON	270	5%	1/4W
1-249-411-11	s RES, CARBON	330	5%	1/4W
1-249-412-11	s RES, CARBON	390	5%	1/4W
1-249-413-11	s RES, CARBON	470	5%	1/4W
1-249-414-11	s RES, CARBON	560	5%	1/4W
1-249-415-11	s RES, CARBON	680	5%	1/4W
1-249-416-11	s RES, CARBON	820	5%	1/4W
1-249-417-11	s RES, CARBON	1.0k	5%	1/4W
1-249-418-11	s RES, CARBON	1.2k	5%	1/4W
1-249-419-11	s RES, CARBON	1.5k	5%	1/4W
1-249-420-11	s RES, CARBON	1.8k	5%	1/4W
1-249-421-11	s RES, CARBON	2.2k	5%	1/4W
1-249-422-11	s RES, CARBON	2.7k	5%	1/4W
1-249-423-11	s RES, CARBON	3.3k	5%	1/4W
1-249-424-11	s RES, CARBON	3.9k	5%	1/4W
1-249-425-11	s RES, CARBON	4.7k	5%	1/4W
1-249-426-11	s RES, CARBON	5.6k	5%	1/4W
1-249-427-11	s RES, CARBON	6.8k	5%	1/4W
1-249-428-11	s RES, CARBON	8.2k	5%	1/4W
1-249-429-11	s RES, CARBON	10k	5%	1/4W
1-249-430-11	s RES, CARBON	12k	5%	1/4W
1-249-431-11	s RES, CARBON	15k	5%	1/4W
1-249-432-11	s RES, CARBON	18k	5%	1/4W
1-249-433-11	s RES, CARBON	22k	5%	1/4W
1-249-434-11	s RES, CARBON	27k	5%	1/4W
1-249-435-11	s RES, CARBON	33k	5%	1/4W
1-249-436-11	s RES, CARBON	39k	5%	1/4W
1-249-437-11	s RES, CARBON	47k	5%	1/4W
1-249-438-11	s RES, CARBON	56k	5%	1/4W
1-249-439-11	s RES, CARBON	68k	5%	1/4W

(RESISTOR, CARBON)

Part No. SP Description

1-249-440-11	s RES, CARBON	82k	5%	1/4W
1-249-441-11	s RES, CARBON	100k	5%	1/4W
1-215-471-00	s RES, METAL	120k	1%	1/4W
1-215-473-00	s RES, METAL	150k	1%	1/4W
1-215-475-00	s RES, METAL	180k	1%	1/4W
1-215-477-00	s RES, METAL	220k	1%	1/4W
1-215-479-00	s RES, METAL	270k	1%	1/4W
1-215-481-00	s RES, METAL	330k	1%	1/4W
1-215-483-00	s RES, METAL	390k	1%	1/4W
1-215-485-00	s RES, METAL	470k	1%	1/4W
1-215-487-00	s RES, METAL	560k	1%	1/4W
1-215-489-00	s RES, METAL	680k	1%	1/4W
1-215-491-00	s RES, METAL	820k	1%	1/4W
1-215-493-00	s RES, METAL	1.0M	1%	1/4W

RESISTOR, METAL

Part No. SP Description

1-215-373-31	s RES, METAL	10	1% 1/6W
1-215-374-00	s RES, METAL	11	1% 1/6W
1-215-375-00	s RES, METAL	12	1% 1/6W
1-215-376-00	s RES, METAL	13	1% 1/6W
1-215-377-00	s RES, METAL	15	1% 1/6W
1-215-378-00	s RES, METAL	16	1% 1/6W
1-215-379-00	s RES, METAL	18	1% 1/6W
1-215-380-00	s RES, METAL	20	1% 1/6W
1-215-381-00	s RES, METAL	22	1% 1/6W
1-215-382-00	s RES, METAL	24	1% 1/6W
1-215-383-00	s RES, METAL	27	1% 1/6W
1-215-384-00	s RES, METAL	30	1% 1/6W
1-215-385-00	s RES, METAL	33	1% 1/6W
1-215-386-00	s RES, METAL	36	1% 1/6W
1-215-387-00	s RES, METAL	39	1% 1/6W
1-215-388-00	s RES, METAL	43	1% 1/6W
1-215-389-00	s RES, METAL	47	1% 1/6W
1-215-390-00	s RES, METAL	51	1% 1/6W
1-215-391-00	s RES, METAL	56	1% 1/6W
1-215-392-00	s RES, METAL	62	1% 1/6W
1-215-393-00	s RES, METAL	68	1% 1/6W
1-215-394-00	s RES, METAL	75	1% 1/6W
1-215-395-00	s RES, METAL	82	1% 1/6W
1-215-396-00	s RES, METAL	91	1% 1/6W
1-215-397-00	s RES, METAL	100	1% 1/6W
1-215-398-00	s RES, METAL	110	1% 1/6W
1-215-399-00	s RES, METAL	120	1% 1/6W
1-215-400-00	s RES, METAL	130	1% 1/6W
1-215-401-00	s RES, METAL	150	1% 1/6W
1-215-402-00	s RES, METAL	160	1% 1/6W
1-215-403-00	s RES, METAL	180	1% 1/6W
1-215-404-00	s RES, METAL	200	1% 1/6W
1-215-405-00	s RES, METAL	220	1% 1/6W
1-215-406-00	s RES, METAL	240	1% 1/6W
1-215-407-00	s RES, METAL	270	1% 1/6W
1-215-408-00	s RES, METAL	300	1% 1/6W
1-215-409-00	s RES, METAL	330	1% 1/6W
1-215-410-00	s RES, METAL	360	1% 1/6W
1-215-411-00	s RES, METAL	390	1% 1/6W
1-215-412-00	s RES, METAL	430	1% 1/6W
1-215-413-00	s RES, METAL	470	1% 1/6W
1-215-414-00	s RES, METAL	510	1% 1/6W
1-215-415-00	s RES, METAL	560	1% 1/6W
1-215-416-00	s RES, METAL	620	1% 1/6W
1-215-417-00	s RES, METAL	680	1% 1/6W
1-215-418-00	s RES, METAL	750	1% 1/6W
1-215-419-00	s RES, METAL	820	1% 1/6W
1-215-420-00	s RES, METAL	910	1% 1/6W
1-215-421-00	s RES, METAL	1.0k	1% 1/6W
1-215-422-00	s RES, METAL	1.1k	1% 1/6W
1-215-423-00	s RES, METAL	1.2k	1% 1/6W
1-215-424-00	s RES, METAL	1.3k	1% 1/6W
1-215-425-00	s RES, METAL	1.5k	1% 1/6W
1-215-426-00	s RES, METAL	1.6k	1% 1/6W
1-215-427-00	s RES, METAL	1.8k	1% 1/6W
1-215-428-00	s RES, METAL	2.0k	1% 1/6W
1-215-429-00	s RES, METAL	2.2k	1% 1/6W
1-215-430-00	s RES, METAL	2.4k	1% 1/6W
1-215-431-00	s RES, METAL	2.7k	1% 1/6W
1-215-432-00	s RES, METAL	3.0k	1% 1/6W

(RESISTOR, METAL)

Part No. SP Description

1-215-433-00	s RES, METAL	3.3k	1% 1/6W
1-215-434-00	s RES, METAL	3.6k	1% 1/6W
1-215-435-00	s RES, METAL	3.9k	1% 1/6W
1-215-436-00	s RES, METAL	4.3k	1% 1/6W
1-215-437-00	s RES, METAL	4.7k	1% 1/6W
1-215-438-00	s RES, METAL	5.1k	1% 1/6W
1-215-439-00	s RES, METAL	5.6k	1% 1/6W
1-215-440-00	s RES, METAL	6.2k	1% 1/6W
1-215-441-00	s RES, METAL	6.8k	1% 1/6W
1-215-442-00	s RES, METAL	7.5k	1% 1/6W
1-215-443-00	s RES, METAL	8.2k	1% 1/6W
1-215-444-00	s RES, METAL	9.1k	1% 1/6W
1-215-445-00	s RES, METAL	10k	1% 1/6W
1-215-446-00	s RES, METAL	11k	1% 1/6W
1-215-447-00	s RES, METAL	12k	1% 1/6W
1-215-448-00	s RES, METAL	13k	1% 1/6W
1-215-449-00	s RES, METAL	15k	1% 1/6W
1-215-450-00	s RES, METAL	16k	1% 1/6W
1-215-451-00	s RES, METAL	18k	1% 1/6W
1-215-452-00	s RES, METAL	20k	1% 1/6W
1-215-453-00	s RES, METAL	22k	1% 1/6W
1-215-454-00	s RES, METAL	24k	1% 1/6W
1-215-455-00	s RES, METAL	27k	1% 1/6W
1-215-456-00	s RES, METAL	30k	1% 1/6W
1-215-457-00	s RES, METAL	33k	1% 1/6W
1-215-458-00	s RES, METAL	36k	1% 1/6W
1-215-459-00	s RES, METAL	39k	1% 1/6W
1-215-460-00	s RES, METAL	43k	1% 1/6W
1-215-461-00	s RES, METAL	47k	1% 1/6W
1-215-462-00	s RES, METAL	51k	1% 1/6W
1-215-463-00	s RES, METAL	56k	1% 1/6W
1-215-464-00	s RES, METAL	62k	1% 1/6W
1-215-465-00	s RES, METAL	68k	1% 1/6W
1-215-466-00	s RES, METAL	75k	1% 1/6W
1-215-467-00	s RES, METAL	82k	1% 1/6W
1-215-468-00	s RES, METAL	91k	1% 1/6W
1-215-469-00	s RES, METAL	100k	1% 1/6W
1-215-470-00	s RES, METAL	110k	1% 1/6W
1-215-471-00	s RES, METAL	120k	1% 1/6W
1-215-472-00	s RES, METAL	130k	1% 1/6W
1-215-473-00	s RES, METAL	150k	1% 1/6W
1-215-474-00	s RES, METAL	160k	1% 1/6W
1-215-475-00	s RES, METAL	180k	1% 1/6W
1-215-476-00	s RES, METAL	200k	1% 1/6W
1-215-477-00	s RES, METAL	220k	1% 1/6W
1-215-478-00	s RES, METAL	240k	1% 1/6W
1-215-479-00	s RES, METAL	270k	1% 1/6W
1-215-480-00	s RES, METAL	300k	1% 1/6W
1-215-481-00	s RES, METAL	330k	1% 1/6W
1-215-482-00	s RES, METAL	360k	1% 1/6W
1-215-483-00	s RES, METAL	390k	1% 1/6W
1-215-484-00	s RES, METAL	430k	1% 1/6W
1-215-485-00	s RES, METAL	470k	1% 1/6W
1-215-486-00	s RES, METAL	510k	1% 1/6W
1-215-487-00	s RES, METAL	560k	1% 1/6W
1-215-488-00	s RES, METAL	620k	1% 1/6W
1-215-489-00	s RES, METAL	680k	1% 1/6W
1-215-490-00	s RES, METAL	750k	1% 1/6W
1-215-491-00	s RES, METAL	820k	1% 1/6W
1-215-492-00	s RES, METAL	910k	1% 1/6W

(RESISTOR, METAL)

Part No. SP Description
1-215-493-00 s RES, METAL 1.0M 1% 1/6W

CONNECTOR

Part No. SP Description

1-506-467-11 o RECEPTACLE 2P MALE (STRAIGHT TYPE)
1-506-481-11 o RECEPTACLE 2P MALE (ANGLE TYPE)
1-562-147-11 o HOUSING 2P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-468-11 o RECEPTACLE 3P MALE (STRAIGHT TYPE)
1-506-482-11 o RECEPTACLE 3P MALE (ANGLE TYPE)
1-562-148-11 o HOUSING 3P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-469-11 o RECEPTACLE 4P MALE (STRAIGHT TYPE)
1-506-483-21 o RECEPTACLE 4P MALE (ANGLE TYPE)
1-562-149-11 o HOUSING 4P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-470-11 o RECEPTACLE 5P MALE (STRAIGHT TYPE)
1-506-484-11 o RECEPTACLE 5P MALE (ANGLE TYPE)
1-562-150-11 o HOUSING 5P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-471-31 o RECEPTACLE 6P MALE (STRAIGHT TYPE)
1-506-485-11 o RECEPTACLE 6P MALE (ANGLE TYPE)
1-562-151-11 o HOUSING 6P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-472-11 o RECEPTACLE 7P MALE (STRAIGHT TYPE)
1-506-486-11 o RECEPTACLE 7P MALE (ANGLE TYPE)
1-562-152-11 o HOUSING 7P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-473-11 o RECEPTACLE 8P MALE (STRAIGHT TYPE)
1-506-487-11 o RECEPTACLE 8P MALE (ANGLE TYPE)
1-562-153-11 o HOUSING 8P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-474-11 o RECEPTACLE 9P MALE (STRAIGHT TYPE)
1-506-488-11 o RECEPTACLE 9P MALE (ANGLE TYPE)
1-562-154-11 o HOUSING 9P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-475-11 o RECEPTACLE 10P MALE (STRAIGHT TYPE)
1-506-489-11 o RECEPTACLE 10P MALE (ANGLE TYPE)
1-562-155-11 o HOUSING 10P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

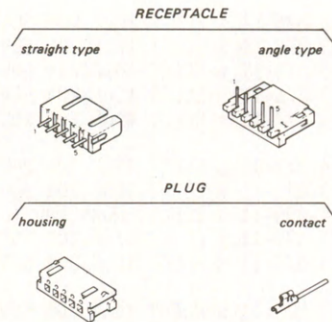
1-506-476-11 o RECEPTACLE 11P MALE (STRAIGHT TYPE)
1-506-490-21 o RECEPTACLE 11P MALE (ANGLE TYPE)
1-562-156-11 o HOUSING 11P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-477-11 o RECEPTACLE 12P MALE (STRAIGHT TYPE)
1-506-491-11 o RECEPTACLE 12P MALE (ANGLE TYPE)
1-562-157-11 o HOUSING 12P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

1-506-478-11 o RECEPTACLE 13P MALE (STRAIGHT TYPE)
1-506-492-11 o RECEPTACLE 13P MALE (ANGLE TYPE)
1-562-627-11 o HOUSING 13P
1-563-088-11 o CONTACT AWG24-30
1-563-089-11 o CONTACT AWG32

(CONNECTOR)

Part No.	SP Description
1-506-479-11	o RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-506-493-11	o RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11	o HOUSING 14P
1-563-088-11	o CONTACT AWG24-30
1-563-089-11	o CONTACT AWG32
1-506-480-11	o RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-506-494-11	o RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11	o HOUSING 15P
1-563-088-11	o CONTACT AWG24-30
1-563-089-11	o CONTACT AWG32



INDUCTOR, MICRO

Part No.	SP Description
1-408-397-00	s INDUCTOR, MICRO 1.0 5%
1-408-399-00	s INDUCTOR, MICRO 1.5 5%
1-408-400-00	s INDUCTOR, MICRO 1.8 5%
1-408-401-00	s INDUCTOR, MICRO 2.2 5%
1-408-403-00	s INDUCTOR, MICRO 3.3 5%
1-408-404-00	s INDUCTOR, MICRO 3.9 5%
1-408-405-00	s INDUCTOR, MICRO 4.7 5%
1-408-406-00	s INDUCTOR, MICRO 5.6 5%
1-408-407-00	s INDUCTOR, MICRO 6.8 5%
1-408-408-00	s INDUCTOR, MICRO 8.2 5%
1-408-409-00	s INDUCTOR, MICRO 10 5%
1-408-410-00	s INDUCTOR, MICRO 12 5%
1-408-411-00	s INDUCTOR, MICRO 15 5%
1-408-412-00	s INDUCTOR, MICRO 18 5%
1-408-413-00	s INDUCTOR, MICRO 22 5%
1-408-414-00	s INDUCTOR, MICRO 27 5%
1-408-415-00	s INDUCTOR, MICRO 33 5%
1-408-416-00	s INDUCTOR, MICRO 39 5%
1-408-417-00	s INDUCTOR, MICRO 47 5%
1-408-418-00	s INDUCTOR, MICRO 56 5%
1-408-419-00	s INDUCTOR, MICRO 68 5%
1-408-420-00	s INDUCTOR, MICRO 82 5%
1-408-421-00	s INDUCTOR, MICRO 100 5%
1-408-422-00	s INDUCTOR, MICRO 120 5%
1-408-423-00	s INDUCTOR, MICRO 150 5%
1-408-424-00	s INDUCTOR, MICRO 180 5%
1-408-425-00	s INDUCTOR, MICRO 220 5%
1-408-426-00	s INDUCTOR, MICRO 270 5%
1-408-427-00	s INDUCTOR, MICRO 330 5%
1-408-428-00	s INDUCTOR, MICRO 390 5%
1-408-429-00	s INDUCTOR, MICRO 470 5%
1-410-116-11	s INDUCTOR, MICRO 560 5%
1-410-492-11	s INDUCTOR, MICRO 680 5%
1-410-493-11	s INDUCTOR, MICRO 820 5%
1-410-494-11	s INDUCTOR, MICRO 1000 5%

AA-16 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6713-363-A	o MOUNTED CIRCUIT BOARD, AA-16
C1	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C10	1-124-477-11	s ELECT 47uF 20% 25V
C11	1-124-477-11	s ELECT 47uF 20% 25V
C12	1-162-207-31	s CERAMIC 22PF 5% 50V
C13	1-124-120-11	s ELECT 220uF 20% 25V
C100	1-126-103-11	s ELECT 470uF 20% 16V
C101	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C110	1-124-477-11	s ELECT 47uF 20% 25V
C111	1-124-477-11	s ELECT 47uF 20% 25V
C112	1-162-207-31	s CERAMIC 22PF 5% 50V
C113	1-124-120-11	s ELECT 220uF 20% 25V
C150	1-161-379-00	s CERAMIC 0.01uF 20% 25V
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D110	8-719-911-19	s DIODE 1SS119
D111	8-719-911-19	s DIODE 1SS119
D150	8-719-109-93	s DIODE RD6.2ESB2
IC101	8-759-981-98	s IC RC4560DD
PS1	1-532-727-11	s LINK, IC 0.25A
Q10	8-729-306-92	s TRANSISTOR 2SD669A
Q11	8-729-304-92	s TRANSISTOR 2SB649A
Q12	8-729-201-05	s TRANSISTOR 2SC2878-B
Q110	8-729-306-92	s TRANSISTOR 2SD669A
Q111	8-729-304-92	s TRANSISTOR 2SB649A
Q112	8-729-201-05	s TRANSISTOR 2SC2878-B
R1	1-247-826-00	s CARBON 620 5% 1/4W
R18	1-247-727-11	s CARBON 10 5% 1/2W
R19	1-247-727-11	s CARBON 10 5% 1/2W
R101	1-247-826-00	s CARBON 620 5% 1/4W
R118	1-247-727-11	s CARBON 10 5% 1/2W
R119	1-247-727-11	s CARBON 10 5% 1/2W
T1	1-423-261-11	s TRANSFORMER, INPUT
T10	1-427-586-11	s TRANSFORMER, INPUT/OUTPUT
T101	1-423-261-11	s TRANSFORMER, INPUT
T110	1-427-586-11	s TRANSFORMER, INPUT/OUTPUT

AC-94 BOARD

Ref. No. or Q'ty	Part No.	SP Description
2pcs	1-533-189-11	o HOLDER, FUSE
C1	△1-136-211-00	s FILM 0.022uF 20% 250V
C2	△1-136-185-00	s FILM 0.22uF 20% 250V
CN1	△1-506-371-00	o CONNECTOR, 2P, MALE
L1	△1-421-556-21	s TRANSFORMER, LINE FILTER
R1	1-214-945-00	s METAL 2.2M 1% 1/2W

AU-124 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6713-362-B	o MOUNTED CIRCUIT BOARD, AU-124
2pcs	3-646-090-00	s RIVET, NYLON
2pcs	3-657-153-00	o HINGE
5pcs	7-682-903-11	s SCREW +PWH 3X6
2pcs	3-733-616-01	o SHEET, INSULATING, AU
C1	1-124-477-11	s ELECT 47uF 20% 25V
C2	1-123-875-11	s ELECT 10uF 20% 50V
C3	1-124-477-11	s ELECT 47uF 20% 25V
C6	1-123-875-11	s ELECT 10uF 20% 50V
C10	1-126-101-11	s ELECT 100uF 20% 16V
C11	1-123-875-11	s ELECT 10uF 20% 50V
C12	1-124-477-11	s ELECT 47uF 20% 25V
C13	1-124-443-00	s ELECT 100uF 20% 10V
C14	1-162-199-31	s CERAMIC 10PF 5% 50V
C15	1-123-875-11	s ELECT 10uF 20% 50V
C16	1-123-875-11	s ELECT 10uF 20% 50V
C19	1-123-875-11	s ELECT 10uF 20% 50V
C20	1-123-875-11	s ELECT 10uF 20% 50V
C22	1-123-875-11	s ELECT 10uF 20% 50V
C51	1-124-477-11	s ELECT 47uF 20% 25V
C52	1-124-477-11	s ELECT 47uF 20% 25V
C53	1-123-875-11	s ELECT 10uF 20% 50V
C54	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C56	1-124-477-11	s ELECT 47uF 20% 25V
C57	1-123-875-11	s ELECT 10uF 20% 50V
C58	1-123-875-11	s ELECT 10uF 20% 50V
C59	1-124-443-00	s ELECT 100uF 20% 10V
C60	1-124-477-11	s ELECT 47uF 20% 25V
C61	1-124-120-11	s ELECT 220uF 20% 25V
C62	1-124-120-11	s ELECT 220uF 20% 25V
C63	1-126-101-11	s ELECT 100uF 20% 16V
C64	1-123-875-11	s ELECT 10uF 20% 50V
C65	1-124-443-00	s ELECT 100uF 20% 10V
C66	1-124-477-11	s ELECT 47uF 20% 25V
C69	1-124-120-11	s ELECT 220uF 20% 25V
C70	1-124-477-11	s ELECT 47uF 20% 25V
C71	1-124-477-11	s ELECT 47uF 20% 25V
C72	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C73	1-124-477-11	s ELECT 47uF 20% 25V
C101	1-123-332-00	s ELECT 47uF 20% 25V
C102	1-162-286-31	s CERAMIC 220PF 10% 50V
C103	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C104	1-123-356-00	s ELECT 10uF 20% 50V
C105	1-124-443-00	s ELECT 100uF 20% 10V
C107	1-123-875-11	s ELECT 10uF 20% 50V
C108	1-124-477-11	s ELECT 47uF 20% 25V
C112	1-123-875-11	s ELECT 10uF 20% 50V
C113	1-123-875-11	s ELECT 10uF 20% 50V
C151	1-109-621-00	s MICA 220PF 1% 500V
C152	1-162-290-31	s CERAMIC 470PF 10% 50V
C153	1-123-875-11	s ELECT 10uF 20% 50V
C154	1-123-875-11	s ELECT 10uF 20% 50V
C155	1-123-332-00	s ELECT 47uF 20% 25V
C156	1-123-875-11	s ELECT 10uF 20% 50V
C158	1-123-875-11	s ELECT 10uF 20% 50V
C159	1-123-875-11	s ELECT 10uF 20% 50V
C162	1-162-219-31	s CERAMIC 68PF 5% 50V
C163	1-123-875-11	s ELECT 10uF 20% 50V
C201	1-123-875-11	s ELECT 10uF 20% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C203	1-123-875-11	s ELECT 10uF 20% 50V
C204	1-124-477-11	s ELECT 47uF 20% 25V
C205	1-123-875-11	s ELECT 10uF 20% 50V
C207	1-124-477-11	s ELECT 47uF 20% 25V
C208	1-126-101-11	s ELECT 100uF 20% 16V
C209	1-123-875-11	s ELECT 10uF 20% 50V
C210	1-124-477-11	s ELECT 47uF 20% 25V
C211	1-124-443-00	s ELECT 100uF 20% 10V
C212	1-162-199-31	s CERAMIC 10PF 5% 50V
C213	1-123-875-11	s ELECT 10uF 20% 50V
C214	1-123-875-11	s ELECT 10uF 20% 50V
C217	1-123-875-11	s ELECT 10uF 20% 50V
C245	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C251	1-124-477-11	s ELECT 47uF 20% 25V
C252	1-124-477-11	s ELECT 47uF 20% 25V
C253	1-123-875-11	s ELECT 10uF 20% 50V
C255	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C301	1-123-332-00	s ELECT 47uF 20% 25V
C303	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C304	1-162-286-31	s CERAMIC 220PF 10% 50V
C307	1-123-875-11	s ELECT 10uF 20% 50V
C309	1-123-356-00	s ELECT 10uF 20% 50V
C310	1-126-101-11	s ELECT 100uF 20% 16V
C311	1-124-443-00	s ELECT 100uF 20% 10V
C313	1-123-875-11	s ELECT 10uF 20% 50V
C314	1-124-477-11	s ELECT 47uF 20% 25V
C318	1-123-875-11	s ELECT 10uF 20% 50V
C319	1-123-875-11	s ELECT 10uF 20% 50V
C321	1-124-477-11	s ELECT 47uF 20% 25V
C351	1-109-621-00	s MICA 220PF 1% 500V
C352	1-162-290-31	s CERAMIC 470PF 10% 50V
C353	1-123-875-11	s ELECT 10uF 20% 50V
C354	1-123-875-11	s ELECT 10uF 20% 50V
C355	1-123-332-00	s ELECT 47uF 20% 25V
C356	1-123-875-11	s ELECT 10uF 20% 50V
C358	1-123-875-11	s ELECT 10uF 20% 50V
C361	1-162-219-31	s CERAMIC 68PF 5% 50V
C362	1-123-875-11	s ELECT 10uF 20% 50V
C363	1-123-875-11	s ELECT 10uF 20% 50V
C401	1-123-875-11	s ELECT 10uF 20% 50V
C402	1-123-875-11	s ELECT 10uF 20% 50V
C403	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C404	1-124-925-11	s ELECT 2.2uF 20% 100V
C451	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C452	1-123-875-11	s ELECT 10uF 20% 50V
C453	1-123-875-11	s ELECT 10uF 20% 50V
C501	1-126-101-11	s ELECT 100uF 20% 16V
C502	1-126-233-11	s ELECT 22uF 20% 50V
C503	1-124-477-11	s ELECT 47uF 20% 25V
C504	1-124-360-00	s ELECT 1000uF 20% 16V
C601	1-123-875-11	s ELECT 10uF 20% 50V
C602	1-124-482-11	s ELECT 33uF 20% 35V
C603	1-124-477-11	s ELECT 47uF 20% 25V
C614	1-124-477-11	s ELECT 47uF 20% 25V
C701	1-162-286-31	s CERAMIC 220PF 10% 50V
C703	1-162-286-31	s CERAMIC 220PF 10% 50V
C704	1-162-284-31	s CERAMIC 150PF 10% 50V
C710	1-162-286-31	s CERAMIC 220PF 10% 50V
C711	1-162-286-31	s CERAMIC 220PF 10% 50V

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C712	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C713	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C714	1-129-718-00	s FILM 0.022uF 10% 630V
C715	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C716	1-131-367-00	s TANTALUM 22uF 10% 20V
C719	1-162-286-31	s CERAMIC 220PF 10% 50V
C721	1-162-286-31	s CERAMIC 220PF 10% 50V
C722	1-162-284-31	s CERAMIC 150PF 10% 50V
C728	1-162-286-31	s CERAMIC 220PF 10% 50V
C729	1-162-286-31	s CERAMIC 220PF 10% 50V
C730	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C731	1-129-718-00	s FILM 0.022uF 10% 630V
C732	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C733	1-131-367-00	s TANTALUM 22uF 10% 20V
C736	1-162-286-31	s CERAMIC 220PF 10% 50V
C738	1-162-284-31	s CERAMIC 150PF 10% 50V
C739	1-131-352-00	s TANTALUM 6.8uF 10% 35V
C740	1-162-215-31	s CERAMIC 47PF 5% 50V
C743	1-162-286-31	s CERAMIC 220PF 10% 50V
C744	1-162-286-31	s CERAMIC 220PF 10% 50V
C745	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C746	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C748	1-131-348-00	s TANTALUM 1.5uF 10% 35V
C749	1-162-286-31	s CERAMIC 220PF 10% 50V
C751	1-162-286-31	s CERAMIC 220PF 10% 50V
C752	1-162-284-31	s CERAMIC 150PF 10% 50V
C753	1-131-352-00	s TANTALUM 6.8uF 10% 35V
C754	1-162-215-31	s CERAMIC 47PF 5% 50V
C757	1-162-286-31	s CERAMIC 220PF 10% 50V
C758	1-162-286-31	s CERAMIC 220PF 10% 50V
C759	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C761	1-131-348-00	s TANTALUM 1.5uF 10% 35V
C762	1-109-621-00	s MICA 220PF 1% 500V
C763	1-109-621-00	s MICA 220PF 1% 500V
C764	1-162-286-31	s CERAMIC 220PF 10% 50V
C765	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C766	1-162-215-31	s CERAMIC 47PF 5% 50V
C767	1-162-215-31	s CERAMIC 47PF 5% 50V
C769	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C770	1-126-103-11	s ELECT 470uF 20% 16V
C771	1-162-211-31	s CERAMIC 33PF 5% 50V
C772	1-162-211-31	s CERAMIC 33PF 5% 50V
C773	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C774	1-162-288-31	s CERAMIC 330PF 10% 50V
C775	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C776	1-162-219-31	s CERAMIC 68PF 5% 50V
C779	1-162-219-31	s CERAMIC 68PF 5% 50V
CN202	1-506-471-11	s CONNECTOR, 6P, MALE
CN206	1-506-471-11	o CONNECTOR, 6P, MALE
CN209	1-506-471-11	o CONNECTOR, 6P, MALE
CN218	1-506-471-11	o CONNECTOR, 6P, MALE
CP601	1-464-805-11	s OSCILLATOR, BIAS
D2	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D7	8-729-105-68	s TRANSISTOR 2SC3356-K
D8	8-729-105-68	s TRANSISTOR 2SC3356-K
D9	8-719-911-19	s DIODE 1SS119

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D10	8-719-911-19	s DIODE 1SS119
D51	8-719-911-19	s DIODE 1SS119
D52	8-719-911-19	s DIODE 1SS119
D53	8-719-911-19	s DIODE 1SS119
D54	8-719-911-19	s DIODE 1SS119
D101	8-719-911-19	s DIODE 1SS119
D102	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119
D104	8-729-105-68	s TRANSISTOR 2SC3356-K
D151	8-729-105-68	s TRANSISTOR 2SC3356-K
D201	8-719-911-19	s DIODE 1SS119
D202	8-719-911-19	s DIODE 1SS119
D204	8-729-105-68	s TRANSISTOR 2SC3356-K
D205	8-719-911-19	s DIODE 1SS119
D206	8-719-911-19	s DIODE 1SS119
D207	8-719-911-19	s DIODE 1SS119
D251	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D351	8-729-105-68	s TRANSISTOR 2SC3356-K
D401	8-729-105-68	s TRANSISTOR 2SC3356-K
D451	8-729-105-68	s TRANSISTOR 2SC3356-K
D501	8-729-105-68	s TRANSISTOR 2SC3356-K
D504	8-719-200-02	s DIODE 10E2
D505	8-719-200-02	s DIODE 10E2
D506	8-719-911-19	s DIODE 1SS119
D507	8-719-109-51	s DIODE RD2.0ES-B2
D508	8-719-911-19	s DIODE 1SS119
D701	8-719-911-19	s DIODE 1SS119
D702	8-719-911-19	s DIODE 1SS119
D703	8-719-109-96	s DIODE RD6.8ESB1
D704	8-719-109-88	s DIODE RD5.6ESB1
IC1	8-759-982-02	s IC RC4562DD
IC2	8-759-208-10	s IC TC4053BPHB
IC3	8-759-982-02	s IC RC4562DD
IC51	8-759-802-46	s IC LA4550
IC101	8-759-981-57	s IC RC2043DD
IC102	8-759-982-02	s IC RC4562DD
IC151	8-759-981-90	s IC RC4558DD
IC202	8-759-208-10	s IC TC4053BPHB
IC351	8-759-981-90	s IC RC4558DD
IC501	8-759-981-98	s IC RC4560DD
IC502	8-759-981-98	s IC RC4560DD
IC503	8-759-240-24	s IC TC4024BP
IC504	8-759-240-69	s IC TC4069UBP
L1	1-407-519-00	s INDUCTOR 8uH
L201	1-407-519-00	s INDUCTOR 8uH
L700	1-459-155-00	s COIL 45uH
LV101	1-410-856-12	s COIL, VAR 22mH
LV102	1-410-856-12	s COIL, VAR 22mH
LV151	1-410-856-12	s COIL, VAR 22mH
LV152	1-410-856-12	s COIL, VAR 22mH
LV301	1-410-856-12	s COIL, VAR 22mH
LV302	1-410-856-12	s COIL, VAR 22mH
LV351	1-410-856-12	s COIL, VAR 22mH
LV352	1-410-856-12	s COIL, VAR 22mH
LV701	1-407-306-00	s INDUCTOR, VAR 28mH

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
LV702	1-407-306-00	s INDUCTOR, VAR 28mH
LV703	1-407-306-00	s INDUCTOR, VAR 28mH
LV704	1-407-300-00	s INDUCTOR, VAR 7.1mH
LV705	1-407-306-00	s INDUCTOR, VAR 28mH
LV706	1-407-300-00	s INDUCTOR, VAR 7.1mH
Q3	8-729-178-54	s TRANSISTOR 2SC2785
Q4	8-729-178-54	s TRANSISTOR 2SC2785
Q5	8-729-178-54	s TRANSISTOR 2SC2785
Q6	8-729-178-54	s TRANSISTOR 2SC2785
Q7	8-729-201-05	s TRANSISTOR 2SC2878-B
Q8	8-729-178-54	s TRANSISTOR 2SC2785
Q51	8-729-201-05	s TRANSISTOR 2SC2878-B
Q52	8-729-178-54	s TRANSISTOR 2SC2785
Q53	8-729-178-54	s TRANSISTOR 2SC2785
Q54	8-729-201-05	s TRANSISTOR 2SC2878-B
Q55	8-729-201-05	s TRANSISTOR 2SC2878-B
Q56	8-729-173-38	s TRANSISTOR 2SA733-K
Q101	8-729-178-55	s TRANSISTOR 2SC2785-E
Q102	8-729-178-55	s TRANSISTOR 2SC2785-E
Q103	8-729-173-38	s TRANSISTOR 2SA733-K
Q105	8-729-201-05	s TRANSISTOR 2SC2878-B
Q106	8-729-201-05	s TRANSISTOR 2SC2878-B
Q151	8-729-201-05	s TRANSISTOR 2SC2878-B
Q152	8-729-178-54	s TRANSISTOR 2SC2785
Q153	8-729-178-54	s TRANSISTOR 2SC2785
Q154	8-729-201-05	s TRANSISTOR 2SC2878-B
Q201	8-729-178-54	s TRANSISTOR 2SC2785
Q202	8-729-178-54	s TRANSISTOR 2SC2785
Q203	8-729-178-54	s TRANSISTOR 2SC2785
Q204	8-729-178-54	s TRANSISTOR 2SC2785
Q206	8-729-201-05	s TRANSISTOR 2SC2878-B
Q207	8-729-178-54	s TRANSISTOR 2SC2785
Q208	8-729-178-54	s TRANSISTOR 2SC2785
Q209	8-729-173-38	s TRANSISTOR 2SA733-K
Q251	8-729-201-05	s TRANSISTOR 2SC2878-B
Q252	8-729-178-54	s TRANSISTOR 2SC2785
Q301	8-729-178-55	s TRANSISTOR 2SC2785-E
Q302	8-729-178-55	s TRANSISTOR 2SC2785-E
Q303	8-729-173-38	s TRANSISTOR 2SA733-K
Q304	8-729-201-05	s TRANSISTOR 2SC2878-B
Q305	8-729-178-54	s TRANSISTOR 2SC2785
Q306	8-729-201-05	s TRANSISTOR 2SC2878-B
Q351	8-729-201-05	s TRANSISTOR 2SC2878-B
Q352	8-729-178-54	s TRANSISTOR 2SC2785
Q353	8-729-178-54	s TRANSISTOR 2SC2785
Q354	8-729-201-05	s TRANSISTOR 2SC2878-B
Q401	8-729-178-54	s TRANSISTOR 2SC2785
Q402	8-729-173-38	s TRANSISTOR 2SA733-K
Q403	8-729-173-38	s TRANSISTOR 2SA733-K
Q451	8-729-178-54	s TRANSISTOR 2SC2785
Q452	8-729-173-38	s TRANSISTOR 2SA733-K
Q501	8-729-178-54	s TRANSISTOR 2SC2785
Q502	8-729-113-31	s TRANSISTOR 2SB733-2
Q503	8-729-173-38	s TRANSISTOR 2SA733-K
Q601	8-729-201-05	s TRANSISTOR 2SC2878-B
Q602	8-729-173-38	s TRANSISTOR 2SA733-K
Q605	8-729-900-65	s TRANSISTOR DTA144ES
Q608	8-729-177-32	s TRANSISTOR 2SD773
Q701	8-729-178-54	s TRANSISTOR 2SC2785

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q705	8-729-173-38	s TRANSISTOR 2SA733-K
Q706	8-729-178-54	s TRANSISTOR 2SC2785
Q707	8-729-905-53	s TRANSISTOR 2SD1055-R
Q708	8-729-982-22	s TRANSISTOR 2SB822
Q709	8-729-173-38	s TRANSISTOR 2SA733-K
Q710	8-729-201-05	s TRANSISTOR 2SC2878-B
Q711	8-729-201-05	s TRANSISTOR 2SC2878-B
Q712	8-729-178-54	s TRANSISTOR 2SC2785
Q716	8-729-173-38	s TRANSISTOR 2SA733-K
Q717	8-729-178-54	s TRANSISTOR 2SC2785
Q718	8-729-905-53	s TRANSISTOR 2SD1055-R
Q719	8-729-982-22	s TRANSISTOR 2SB822
Q720	8-729-173-38	s TRANSISTOR 2SA733-K
Q721	8-729-201-05	s TRANSISTOR 2SC2878-B
Q722	8-729-201-05	s TRANSISTOR 2SC2878-B
Q723	8-729-178-54	s TRANSISTOR 2SC2785
Q724	8-729-173-38	s TRANSISTOR 2SA733-K
Q725	8-729-201-05	s TRANSISTOR 2SC2878-B
Q726	8-729-201-05	s TRANSISTOR 2SC2878-B
Q727	8-729-178-54	s TRANSISTOR 2SC2785
Q728	8-729-173-38	s TRANSISTOR 2SA733-K
Q729	8-729-178-54	s TRANSISTOR 2SC2785
Q730	8-729-905-53	s TRANSISTOR 2SD1055-R
Q731	8-729-982-22	s TRANSISTOR 2SB822
Q732	8-729-178-54	s TRANSISTOR 2SC2785
Q733	8-729-173-38	s TRANSISTOR 2SA733-K
Q734	8-729-201-05	s TRANSISTOR 2SC2878-B
Q735	8-729-201-05	s TRANSISTOR 2SC2878-B
Q736	8-729-178-54	s TRANSISTOR 2SC2785
Q737	8-729-173-38	s TRANSISTOR 2SA733-K
Q738	8-729-178-54	s TRANSISTOR 2SC2785
Q739	8-729-905-53	s TRANSISTOR 2SD1055-R
Q740	8-729-982-22	s TRANSISTOR 2SB822
Q744	8-729-900-74	s TRANSISTOR DTC143TS
Q745	8-729-900-74	s TRANSISTOR DTC143TS
Q746	8-729-900-65	s TRANSISTOR DTA144ES
R10	1-247-903-00	s CARBON 1M 5% 1/4W
R19	1-247-887-00	s CARBON 220K 5% 1/4W
R40	1-247-891-00	s CARBON 330K 5% 1/4W
R117	1-247-887-00	s CARBON 220K 5% 1/4W
R124	1-247-881-00	s CARBON 120K 5% 1/4W
R126	1-247-881-00	s CARBON 120K 5% 1/4W
R159	1-247-883-00	s CARBON 150K 5% 1/4W
R204	1-247-891-00	s CARBON 330K 5% 1/4W
R216	1-247-887-00	s CARBON 220K 5% 1/4W
R316	1-247-903-00	s CARBON 1M 5% 1/4W
R321	1-247-887-00	s CARBON 220K 5% 1/4W
R327	1-247-881-00	s CARBON 120K 5% 1/4W
R329	1-247-881-00	s CARBON 120K 5% 1/4W
R359	1-247-883-00	s CARBON 150K 5% 1/4W
R709	1-247-895-00	s CARBON 470K 5% 1/4W
R712	1-247-903-00	s CARBON 1M 5% 1/4W
R716	1-249-480-11	s CARBON 3.3 5% 1/2W
R717	1-249-480-11	s CARBON 3.3 5% 1/2W
R732	1-247-895-00	s CARBON 470K 5% 1/4W
R741	1-249-480-11	s CARBON 3.3 5% 1/2W
R742	1-249-480-11	s CARBON 3.3 5% 1/2W
R758	1-247-887-00	s CARBON 220K 5% 1/4W

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Ref. No. or Q'ty	Part No.	SP Description
R767	1-249-480-11	s CARBON 3.3 5% 1/2W
R768	1-249-480-11	s CARBON 3.3 5% 1/2W
R777	1-247-887-00	s CARBON 220K 5% 1/4W
R787	1-249-480-11	s CARBON 3.3 5% 1/2W
R788	1-249-480-11	s CARBON 3.3 5% 1/2W
R799	1-247-895-00	s CARBON 470K 5% 1/4W
R800	1-247-731-11	s CARBON 22 5% 1/2W
R803	1-247-895-00	s CARBON 470K 5% 1/4W
R804	1-247-731-11	s CARBON 22 5% 1/2W
RV1	1-228-996-00	s RES, ADJ, METAL 47K
RV51	1-228-990-00	s RES, ADJ, METAL 1K
RV101	1-228-994-00	s RES, ADJ, METAL 10K
RV102	1-228-994-00	s RES, ADJ, METAL 10K
RV103	1-228-994-00	s RES, ADJ, METAL 10K
RV104	1-228-993-00	s RES, ADJ, METAL 4.7K
RV151	1-228-993-00	s RES, ADJ, METAL 4.7K
RV152	1-228-994-00	s RES, ADJ, METAL 10K
RV153	1-228-998-00	s RES, ADJ, METAL 220K
RV154	1-228-998-00	s RES, ADJ, METAL 220K
RV201	1-228-996-00	s RES, ADJ, METAL 47K
RV251	1-228-990-00	s RES, ADJ, METAL 1K
RV301	1-228-994-00	s RES, ADJ, METAL 10K
RV302	1-228-994-00	s RES, ADJ, METAL 10K
RV303	1-228-994-00	s RES, ADJ, METAL 10K
RV304	1-228-993-00	s RES, ADJ, METAL 4.7K
RV351	1-228-993-00	s RES, ADJ, METAL 4.7K
RV352	1-228-994-00	s RES, ADJ, METAL 10K
RV353	1-228-998-00	s RES, ADJ, METAL 220K
RV354	1-228-998-00	s RES, ADJ, METAL 220K
RV401	1-228-998-00	s RES, ADJ, METAL 220K
RV402	1-228-998-00	s RES, ADJ, METAL 220K
RV403	1-228-998-00	s RES, ADJ, METAL 220K
RV404	1-228-999-00	s RES, ADJ, METAL 470K
RV405	1-228-998-00	s RES, ADJ, METAL 220K
RV406	1-228-999-00	s RES, ADJ, METAL 470K
RV604	1-228-994-00	s RES, ADJ, METAL 10K
X301	1-567-875-11	s RESONATOR, CERAMIC 2.27MHz

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

BC-16 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-040-A	o MOUNTED CIRCUIT BOARD, BC-16
C401	1-124-443-00	s ELECT 100uF 20% 10V
C402	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C403	1-162-210-31	s CERAMIC 30PF 5% 50V
C404	1-162-210-31	s CERAMIC 30PF 5% 50V
C405	1-162-292-31	s CERAMIC 680PF 10% 50V
C406	1-124-443-00	s ELECT 100uF 20% 10V
C407	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C408	1-161-379-00	s CERAMIC 0.01uF 20% 25V
IC401	8-759-944-64	s IC MB88525-179M
IC402	8-759-240-69	s IC TC4069UBP
IC403	8-759-240-69	s IC TC4069UBP
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q403	8-729-900-89	s TRANSISTOR DTC144ES
Q404	8-729-900-89	s TRANSISTOR DTC144ES
Q405	8-729-900-89	s TRANSISTOR DTC144ES
Q406	8-729-900-89	s TRANSISTOR DTC144ES
Q408	8-729-900-89	s TRANSISTOR DTC144ES
Q409	8-729-900-89	s TRANSISTOR DTC144ES
Q410	8-729-900-89	s TRANSISTOR DTC144ES
Q413	8-729-119-78	s TRANSISTOR 2SC2785
Q417	8-729-900-89	s TRANSISTOR DTC144ES
Q418	8-729-900-89	s TRANSISTOR DTC144ES
Q425	8-729-900-89	s TRANSISTOR DTC144ES
Q426	8-729-900-89	s TRANSISTOR DTC144ES
R430	1-247-903-00	s CARBON 1M 5% 1/4W
X401	1-567-143-00	s RESONATOR, CERAMIC 6.00MHz

CC-36 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-627-572-12	o PRINTED CIRCUIT BOARD, CC-36
IC1	8-719-940-86	s PHOTOINTERRUPTER GP-1L53
R1	1-247-705-11	s CARBON 270 5% 1/4W
R2	1-247-717-11	s CARBON 2.2K 5% 1/4W
R3	1-247-705-11	s CARBON 270 5% 1/4W
R4	1-247-717-11	s CARBON 2.2K 5% 1/4W

CC-37 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-627-573-12	o PRINTED CIRCUIT BOARD, CC-37
IC2	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "CASSETTE IN DET"

CP-136 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-481-11	o PRINTED CIRCUIT BOARD, CP-136

DC-31D BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-561-432-00	o CONTACT, FEMALE
1pc	1-561-424-11	o HOUSING, 5P
1pc	1-622-221-11	o PRINTED CIRCUIT BOARD, DC-31
6pcs	1-533-189-11	o HOLDER, FUSE
C1	1-124-479-11	s ELECT 330uF 20% 25V
C2	1-161-379-00	s CERAMIC 0.01uF 20% 25V
IC1	8-759-938-15	s IC BA178M05

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

DM-69 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-033-A	o MOUNTED CIRCUIT BOARD, DM-69
2pcs	3-646-090-00	s RIVET, NYLON
2pcs	3-703-141-00	o HQLDER, PCB
6pcs	7-682-903-11	s SCREW +PHW 3X6
2pcs	3-710-565-01	o HINGE, PRINTED CIRCUIT BOARD
2pcs	3-670-570-31	o SPACER, SUPPORT
C1	1-161-494-00	s CERAMIC 0.022uF 25V
C2	1-124-589-11	s ELECT 47uF 20% 16V
C3	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C4	1-124-589-11	s ELECT 47uF 20% 16V
C5	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C8	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C11	1-161-494-00	s CERAMIC 0.022uF 25V
C16	1-161-494-00	s CERAMIC 0.022uF 25V
C20	1-124-589-11	s ELECT 47uF 20% 16V
C21	1-161-494-00	s CERAMIC 0.022uF 25V
C25	1-124-589-11	s ELECT 47uF 20% 16V
C28	1-161-494-00	s CERAMIC 0.022uF 25V
C29	1-161-494-00	s CERAMIC 0.022uF 25V
C31	1-124-589-11	s ELECT 47uF 20% 16V
C32	1-161-494-00	s CERAMIC 0.022uF 25V
C33	1-161-494-00	s CERAMIC 0.022uF 25V
C35	1-161-494-00	s CERAMIC 0.022uF 25V
C36	1-124-589-11	s ELECT 47uF 20% 16V
C39	1-161-494-00	s CERAMIC 0.022uF 25V
C45	1-162-217-31	s CERAMIC 56PF 5% 50V
C47	1-162-217-31	s CERAMIC 56PF 5% 50V
C51	1-124-584-00	s ELECT 100uF 20% 10V
C54	1-162-215-31	s CERAMIC 47PF 5% 50V
C55	1-161-494-00	s CERAMIC 0.022uF 25V
C56	1-126-176-11	s ELECT 220uF 20% 10V
C58	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C59	1-126-103-11	s ELECT 470uF 20% 16V
C60	1-124-589-11	s ELECT 47uF 20% 16V
C61	1-161-494-00	s CERAMIC 0.022uF 25V
C64	1-161-494-00	s CERAMIC 0.022uF 25V
C65	1-124-604-00	s ELECT 330uF 20% 10V
C66	1-126-176-11	s ELECT 220uF 20% 10V
C68	1-161-494-00	s CERAMIC 0.022uF 25V
C69	1-124-589-11	s ELECT 47uF 20% 16V
C70	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C71	1-124-584-00	s ELECT 100uF 20% 10V
C73	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C74	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C75	1-126-157-11	s ELECT 10uF 20% 16V
C76	1-124-257-00	s ELECT 2.2uF 20% 50V
C77	1-124-584-00	s ELECT 100uF 20% 10V
C78	1-161-494-00	s CERAMIC 0.022uF 25V
C79	1-124-589-11	s ELECT 47uF 20% 16V
C80	1-124-584-00	s ELECT 100uF 20% 10V
C81	1-124-589-11	s ELECT 47uF 20% 16V
C82	1-161-494-00	s CERAMIC 0.022uF 25V
C83	1-124-584-00	s ELECT 100uF 20% 10V
C86	1-126-176-11	s ELECT 220uF 20% 10V
C88	1-124-584-00	s ELECT 100uF 20% 10V
C89	1-124-589-11	s ELECT 47uF 20% 16V
C90	1-124-589-11	s ELECT 47uF 20% 16V
C93	1-126-176-11	s ELECT 220uF 20% 10V

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Ref. No. or Q'ty	Part No.	SP Description
C94	1-161-494-00	s CERAMIC 0.022uF 25V
C97	1-124-360-00	s ELECT 1000uF 20% 16V
C98	1-124-360-00	s ELECT 1000uF 20% 16V
C99	1-161-494-00	s CERAMIC 0.022uF 25V
C100	1-162-286-31	s CERAMIC 220PF 10% 50V
C101	1-162-286-31	s CERAMIC 220PF 10% 50V
C102	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C108	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C111	1-124-589-11	s ELECT 47uF 20% 16V
C112	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C113	1-124-589-11	s ELECT 47uF 20% 16V
C115	1-126-157-11	s ELECT 10uF 20% 16V
C116	1-126-157-11	s ELECT 10uF 20% 16V
C201	1-126-160-11	s ELECT 1uF 20% 50V
C205	1-124-589-11	s ELECT 47uF 20% 16V
C206	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C207	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C208	1-124-589-11	s ELECT 47uF 20% 16V
C209	1-124-589-11	s ELECT 47uF 20% 16V
C210	1-124-589-11	s ELECT 47uF 20% 16V
C211	1-124-589-11	s ELECT 47uF 20% 16V
C212	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C213	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C214	1-124-589-11	s ELECT 47uF 20% 16V
C215	1-124-589-11	s ELECT 47uF 20% 16V
C254	1-161-494-00	s CERAMIC 0.022uF 25V
C301	1-126-103-11	s ELECT 470uF 20% 16V
C302	1-161-494-00	s CERAMIC 0.022uF 25V
C303	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C304	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C305	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C307	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C309	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C312	1-126-160-11	s ELECT 1uF 20% 50V
C314	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C401	1-124-589-11	s ELECT 47uF 20% 16V
C402	1-124-589-11	s ELECT 47uF 20% 16V
C403	1-124-584-00	s ELECT 100uF 20% 10V
C404	1-124-589-11	s ELECT 47uF 20% 16V
C405	1-124-589-11	s ELECT 47uF 20% 16V
C406	1-161-494-00	s CERAMIC 0.022uF 25V
C408	1-126-157-11	s ELECT 10uF 20% 16V
C411	1-124-589-11	s ELECT 47uF 20% 16V
C412	1-124-589-11	s ELECT 47uF 20% 16V
C413	1-124-589-11	s ELECT 47uF 20% 16V
C414	1-161-494-00	s CERAMIC 0.022uF 25V
C415	1-124-584-00	s ELECT 100uF 20% 10V
C416	1-124-589-11	s ELECT 47uF 20% 16V
C417	1-124-584-00	s ELECT 100uF 20% 10V
C418	1-124-589-11	s ELECT 47uF 20% 16V
C426	1-124-893-11	s ELECT 2200uF 20% 10V
C427	1-124-473-11	s ELECT 1000uF 20% 10V
C428	1-124-473-11	s ELECT 1000uF 20% 10V
C501	1-124-589-11	s ELECT 47uF 20% 16V
C502	1-161-494-00	s CERAMIC 0.022uF 25V
C511	1-126-160-11	s ELECT 1uF 20% 50V
C512	1-124-257-00	s ELECT 2.2uF 20% 50V
C513	1-126-157-11	s ELECT 10uF 20% 16V
C516	1-126-157-11	s ELECT 10uF 20% 16V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-69 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C517	1-124-257-00	s ELECT 2.2uF 20% 50V
C518	1-126-157-11	s ELECT 10uF 20% 16V
C520	1-124-589-11	s ELECT 47uF 20% 16V
C521	1-161-494-00	s CERAMIC 0.022uF 25V
CN101	1-506-471-11	s CONNECTOR, 6P, MALE
CN111	1-506-471-11	s CONNECTOR, 6P, MALE
CV1	1-141-245-00	s CAP, TRIMMER 30PF
CV2	1-141-227-00	s CAP, TRIMMER 20PF
CV3	1-141-227-00	s CAP, TRIMMER 20PF
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D8	8-719-109-44	s DIODE 1SS99-1
D9	8-719-109-44	s DIODE 1SS99-1
D10	8-719-109-52	s DIODE RD2.2ES-B
D12	8-719-911-19	s DIODE 1SS119
D13	8-719-911-19	s DIODE 1SS119
D14	8-719-911-19	s DIODE 1SS119
D15	8-719-911-19	s DIODE 1SS119
D201	8-719-911-19	s DIODE 1SS119
D202	8-719-911-19	s DIODE 1SS119
D251	8-719-911-19	s DIODE 1SS119
D252	8-719-911-19	s DIODE 1SS119
D301	8-719-101-97	s DIODE 1SS97-1
D302	8-719-101-97	s DIODE 1SS97-1
D303	8-719-911-19	s DIODE 1SS119
D304	8-719-911-19	s DIODE 1SS119
D305	8-719-911-19	s DIODE 1SS119
D306	8-719-911-19	s DIODE 1SS119
D307	8-719-911-19	s DIODE 1SS119
D401	8-719-911-19	s DIODE 1SS119
D402	8-719-911-19	s DIODE 1SS119
D404	8-719-911-19	s DIODE 1SS119
DL1	1-415-162-21	s DELAY LINE 50nS
DL2	1-415-154-00	s DELAY LINE 35nS
FL1	1-235-623-11	s FILTER, HIGH-PASS
FL2	1-231-581-21	s FILTER, HIGH-PASS
FL3	1-236-039-11	s FILTER, LOW-PASS
FL4	1-236-037-11	s FILTER, LOW-PASS
FL201	1-235-474-11	s FILTER, LOW-PASS
FL501	1-235-617-11	s FILTER, LOW-PASS
IC1	8-751-340-10	s IC CX134A
IC3	8-741-114-00	s IC BX1140
IC4	8-751-350-10	s IC CX135
IC5	8-759-208-10	s IC TC4053BPHB
IC7	8-759-982-21	s IC RC78L05A
IC9	8-759-981-91	s IC RC4558DQ
IC10	8-752-006-12	s IC CX20061
IC11	8-759-400-06	s IC AN608P
IC12	8-749-900-94	s IC BX1472
IC13	8-759-200-60	s IC TA7060AP
IC14	8-752-006-12	s IC CX20061
IC201	8-752-321-75	s IC CXL5005P
IC202	8-759-982-25	s IC RC78L09A
IC251	8-741-124-80	s IC BX1248
IC301	8-759-200-60	s IC TA7060AP

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Ref. No. or Q'ty	Part No.	SP Description
IC302	8-752-006-12	s IC CX20061
IC303	8-749-900-68	s IC BX-1447L
IC304	8-749-900-59	s IC BX-1448L
IC305	8-759-345-38	s IC HD14538BP
IC401	8-743-880-00	s IC BX-388
IC402	8-743-880-00	s IC BX-388
IC403	8-759-208-10	s IC TC4053BPHB
IC502	8-752-006-12	s IC CX20061
IC503	8-743-890-00	s IC BX-389
IC505	8-759-045-38	s IC MC14538BCP
L1	1-410-482-31	s INDUCTOR 100uH
L2	1-410-087-31	s INDUCTOR 10mH
L3	1-410-471-11	s INDUCTOR 12uH
L4	1-410-471-11	s INDUCTOR 12uH
L5	1-410-087-31	s INDUCTOR 10mH
L7	1-410-473-11	s INDUCTOR 18uH
L9	1-410-092-21	s INDUCTOR 27mH
L10	1-410-482-31	s INDUCTOR 100uH
L15	1-410-470-11	s INDUCTOR 10uH
L16	1-410-482-31	s INDUCTOR 100uH
L17	1-410-482-31	s INDUCTOR 100uH
L18	1-410-482-31	s INDUCTOR 100uH
L19	1-410-473-11	s INDUCTOR 18uH
L22	1-410-482-31	s INDUCTOR 100uH
L23	1-410-482-31	s INDUCTOR 100uH
L24	1-410-482-31	s INDUCTOR 100uH
L25	1-410-473-11	s INDUCTOR 18uH
L26	1-410-087-31	s INDUCTOR 10mH
L28	1-410-476-11	s INDUCTOR 33uH
L29	1-410-478-11	s INDUCTOR 47uH
L31	1-410-473-11	s INDUCTOR 18uH
L33	1-410-478-11	s INDUCTOR 47uH
L35	1-410-470-11	s INDUCTOR 10uH
L37	1-410-461-41	s INDUCTOR 1.8uH
L201	1-410-482-31	s INDUCTOR 100uH
L301	1-410-482-31	s INDUCTOR 100uH
L401	1-410-482-31	s INDUCTOR 100uH
L402	1-410-482-31	s INDUCTOR 100uH
L403	1-410-482-31	s INDUCTOR 100uH
L501	1-410-482-31	s INDUCTOR 100uH
L502	1-410-482-31	s INDUCTOR 100uH
L504	1-410-476-11	s INDUCTOR 33uH
L505	1-410-482-31	s INDUCTOR 100uH
LV301	1-407-569-00	s COIL, VAR 10uH
LV501	1-407-268-00	s INDUCTOR, VAR 1.5mH
Q1	8-729-603-50	s TRANSISTOR 2SC403SP
Q2	8-729-603-50	s TRANSISTOR 2SC403SP
Q3	8-729-603-50	s TRANSISTOR 2SC403SP
Q5	8-729-900-89	s TRANSISTOR DTC144ES
Q6	8-729-201-05	s TRANSISTOR 2SC2878-B
Q7	8-729-603-50	s TRANSISTOR 2SC403SP
Q8	8-729-603-50	s TRANSISTOR 2SC403SP
Q9	8-729-603-50	s TRANSISTOR 2SC403SP
Q10	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q11	8-729-113-31	s TRANSISTOR 2SB733-2
Q12	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q13	8-729-603-50	s TRANSISTOR 2SC403SP
Q14	8-729-603-50	s TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
Q15	8-729-900-89	s TRANSISTOR DTC144ES
Q16	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q17	8-729-603-50	s TRANSISTOR 2SC403SP
Q18	8-729-603-50	s TRANSISTOR 2SC403SP
Q19	8-729-603-50	s TRANSISTOR 2SC403SP
Q20	8-729-603-50	s TRANSISTOR 2SC403SP
Q21	8-729-119-76	s TRANSISTOR 2SA1175
Q22	8-729-603-50	s TRANSISTOR 2SC403SP
Q23	8-729-603-50	s TRANSISTOR 2SC403SP
Q24	8-729-119-76	s TRANSISTOR 2SA1175
Q25	8-729-105-72	s TRANSISTOR 2SK523-L1
Q26	8-729-201-05	s TRANSISTOR 2SC2878-B
Q27	8-729-201-05	s TRANSISTOR 2SC2878-B
Q28	8-729-603-50	s TRANSISTOR 2SC403SP
Q29	8-729-119-76	s TRANSISTOR 2SA1175
Q30	8-729-603-50	s TRANSISTOR 2SC403SP
Q32	8-729-603-50	s TRANSISTOR 2SC403SP
Q33	8-729-603-50	s TRANSISTOR 2SC403SP
Q34	8-729-603-50	s TRANSISTOR 2SC403SP
Q35	8-729-603-50	s TRANSISTOR 2SC403SP
Q36	8-729-603-50	s TRANSISTOR 2SC403SP
Q37	8-729-603-50	s TRANSISTOR 2SC403SP
Q38	8-729-201-05	s TRANSISTOR 2SC2878-B
Q39	8-729-603-50	s TRANSISTOR 2SC403SP
Q40	8-729-603-50	s TRANSISTOR 2SC403SP
Q41	8-729-119-76	s TRANSISTOR 2SA1175
Q42	8-729-900-89	s TRANSISTOR DTC144ES
Q43	8-729-603-50	s TRANSISTOR 2SC403SP
Q44	8-729-603-50	s TRANSISTOR 2SC403SP
Q45	8-729-603-50	s TRANSISTOR 2SC403SP
Q46	8-729-603-50	s TRANSISTOR 2SC403SP
Q47	8-729-900-89	s TRANSISTOR DTC144ES
Q48	8-729-201-05	s TRANSISTOR 2SC2878-B
Q49	8-729-603-50	s TRANSISTOR 2SC403SP
Q50	8-729-603-50	s TRANSISTOR 2SC403SP
Q51	8-729-201-05	s TRANSISTOR 2SC2878-B
Q52	8-729-603-50	s TRANSISTOR 2SC403SP
Q53	8-729-603-50	s TRANSISTOR 2SC403SP
Q54	8-729-603-50	s TRANSISTOR 2SC403SP
Q55	8-729-603-50	s TRANSISTOR 2SC403SP
Q56	8-729-603-50	s TRANSISTOR 2SC403SP
Q57	8-729-900-89	s TRANSISTOR DTC144ES
Q58	8-729-900-89	s TRANSISTOR DTC144ES
Q59	8-729-900-89	s TRANSISTOR DTC144ES
Q61	8-729-900-89	s TRANSISTOR DTC144ES
Q201	8-729-900-89	s TRANSISTOR DTC144ES
Q202	8-729-119-76	s TRANSISTOR 2SA1175
Q203	8-729-603-50	s TRANSISTOR 2SC403SP
Q204	8-729-603-50	s TRANSISTOR 2SC403SP
Q205	8-729-119-76	s TRANSISTOR 2SA1175
Q206	8-729-201-05	s TRANSISTOR 2SC2878-B
Q301	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q302	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q303	8-729-900-89	s TRANSISTOR DTC144ES
Q305	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q306	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q307	8-729-900-89	s TRANSISTOR DTC144ES
Q308	8-729-900-89	s TRANSISTOR DTC144ES
Q309	8-729-603-50	s TRANSISTOR 2SC403SP

(DM-69 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q310	8-729-900-89	s TRANSISTOR DTC144ES
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q402	8-729-603-50	s TRANSISTOR 2SC403SP
Q403	8-729-201-05	s TRANSISTOR 2SC2878-B
Q404	8-729-201-05	s TRANSISTOR 2SC2878-B
Q405	8-729-603-50	s TRANSISTOR 2SC403SP
Q406	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q407	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q408	8-729-900-89	s TRANSISTOR DTC144ES
Q409	8-729-119-76	s TRANSISTOR 2SA1175
Q410	8-729-119-76	s TRANSISTOR 2SA1175
Q411	8-729-119-76	s TRANSISTOR 2SA1175
Q412	8-729-119-76	s TRANSISTOR 2SA1175
Q413	8-729-900-89	s TRANSISTOR DTC144ES
Q414	8-729-900-89	s TRANSISTOR DTC144ES
Q501	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q502	8-729-603-50	s TRANSISTOR 2SC403SP
Q503	8-729-603-50	s TRANSISTOR 2SC403SP
Q504	8-729-201-05	s TRANSISTOR 2SC2878-B
Q505	8-729-603-50	s TRANSISTOR 2SC403SP
Q506	8-729-201-05	s TRANSISTOR 2SC2878-B
Q507	8-729-201-05	s TRANSISTOR 2SC2878-B
Q511	8-729-900-89	s TRANSISTOR DTC144ES
Q512	8-729-603-50	s TRANSISTOR 2SC403SP
Q513	8-729-201-05	s TRANSISTOR 2SC2878-B
R84	1-249-442-11	s CARBON 510 5% 1/4W
R97	1-247-887-00	s CARBON 220K 5% 1/4W
R188	1-247-852-11	s CARBON 7.5K 5% 1/4W
R201	1-247-903-00	s CARBON 1M 5% 1/4W
RV1	1-228-990-00	s RES, ADJ, METAL 1K
RV2	1-228-990-00	s RES, ADJ, METAL 1K
RV3	1-228-990-00	s RES, ADJ, METAL 1K
RV4	1-228-991-00	s RES, ADJ, METAL 2.2K
RV5	1-228-991-00	s RES, ADJ, METAL 2.2K
RV6	1-228-991-00	s RES, ADJ, METAL 2.2K
RV8	1-228-995-00	s RES, ADJ, METAL 22K
RV9	1-228-991-00	s RES, ADJ, METAL 2.2K
RV10	1-228-991-00	s RES, ADJ, METAL 2.2K
RV11	1-228-989-00	s RES, ADJ, METAL 470
RV13	1-228-995-00	s RES, ADJ, METAL 22K
RV16	1-228-991-00	s RES, ADJ, METAL 2.2K
RV17	1-228-994-00	s RES, ADJ, METAL 10K
RV201	1-228-989-00	s RES, ADJ, METAL 470
RV251	1-228-993-00	s RES, ADJ, METAL 4.7K
RV301	1-228-994-00	s RES, ADJ, METAL 10K
RV401	1-228-989-00	s RES, ADJ, METAL 470
RV402	1-228-989-00	s RES, ADJ, METAL 470
RV403	1-228-993-00	s RES, ADJ, METAL 4.7K
RV501	1-228-990-00	s RES, ADJ, METAL 1K
RV502	1-228-991-00	s RES, ADJ, METAL 2.2K
RV503	1-228-991-00	s RES, ADJ, METAL 2.2K
RV524	1-228-996-00	s RES, ADJ, METAL 47K
S301	1-552-509-00	s SWITCH, DIP 1-CKT

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

DM-70 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-034-A	o MOUNTED CIRCUIT BOARD, DM-70
C506	1-124-360-00	s ELECT 1000uF 20% 16V
C525	1-124-589-11	s ELECT 47uF 20% 16V
C526	1-161-494-00	s CERAMIC 0.022uF 25V
C527	1-126-160-11	s ELECT 1uF 20% 50V
C529	1-126-157-11	s ELECT 10uF 20% 16V
C531	1-126-160-11	s ELECT 1uF 20% 50V
C532	1-126-160-11	s ELECT 1uF 20% 50V
C533	1-126-101-11	s ELECT 100uF 20% 16V
C534	1-161-494-00	s CERAMIC 0.022uF 25V
C535	1-126-157-11	s ELECT 10uF 20% 16V
C537	1-126-157-11	s ELECT 10uF 20% 16V
C538	1-126-157-11	s ELECT 10uF 20% 16V
C541	1-131-344-00	s TANTALUM 0.33uF 10% 35V
C543	1-126-101-11	s ELECT 100uF 20% 16V
C544	1-161-494-00	s CERAMIC 0.022uF 25V
C547	1-124-589-11	s ELECT 47uF 20% 16V
C548	1-124-589-11	s ELECT 47uF 20% 16V
C549	1-161-494-00	s CERAMIC 0.022uF 25V
C550	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C552	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C554	1-161-494-00	s CERAMIC 0.022uF 25V
C557	1-161-494-00	s CERAMIC 0.022uF 25V
C558	1-161-494-00	s CERAMIC 0.022uF 25V
C559	1-161-494-00	s CERAMIC 0.022uF 25V
C561	1-131-379-00	s TANTALUM 22uF 10% 10V
C562	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C563	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C564	1-131-379-00	s TANTALUM 22uF 10% 10V
C565	1-126-157-11	s ELECT 10uF 20% 16V
C567	1-124-584-00	s ELECT 100uF 20% 10V
C568	1-162-724-11	s CERAMIC 390PF 1% 50V
C571	1-161-494-00	s CERAMIC 0.022uF 25V
C572	1-161-494-00	s CERAMIC 0.022uF 25V
C573	1-126-160-11	s ELECT 1uF 20% 50V
C575	1-126-101-11	s ELECT 100uF 20% 16V
C576	1-161-494-00	s CERAMIC 0.022uF 25V
C578	1-161-494-00	s CERAMIC 0.022uF 25V
C579	1-131-344-00	s TANTALUM 0.33uF 10% 35V
C580	1-124-589-11	s ELECT 47uF 20% 16V
C582	1-161-494-00	s CERAMIC 0.022uF 25V
C583	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C585	1-131-343-00	s TANTALUM 0.22uF 10% 35V
C587	1-161-494-00	s CERAMIC 0.022uF 25V
C588	1-124-589-11	s ELECT 47uF 20% 16V
C589	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C591	1-124-589-11	s ELECT 47uF 20% 16V
C592	1-161-494-00	s CERAMIC 0.022uF 25V
C595	1-124-589-11	s ELECT 47uF 20% 16V
C596	1-161-494-00	s CERAMIC 0.022uF 25V
C598	1-124-257-00	s ELECT 2.2uF 20% 50V
C599	1-162-726-11	s CERAMIC 470PF 1% 50V
C600	1-162-730-11	s CERAMIC 680PF 1% 50V
C601	1-126-160-11	s ELECT 1uF 20% 50V
C602	1-161-494-00	s CERAMIC 0.022uF 25V
C604	1-124-589-11	s ELECT 47uF 20% 16V
C605	1-161-494-00	s CERAMIC 0.022uF 25V
C606	1-161-379-00	s CERAMIC 0.01uF 20% 25V

(DM-70 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C609	1-161-494-00	s CERAMIC 0.022uF 25V
C610	1-124-589-11	s ELECT 47uF 20% 16V
C611	1-161-494-00	s CERAMIC 0.022uF 25V
C613	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C616	1-161-494-00	s CERAMIC 0.022uF 25V
C617	1-126-157-11	s ELECT 10uF 20% 16V
C618	1-162-716-11	s CERAMIC 180PF 1% 50V
C620	1-161-494-00	s CERAMIC 0.022uF 25V
C622	1-126-157-11	s ELECT 10uF 20% 16V
C623	1-126-157-11	s ELECT 10uF 20% 16V
C629	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C630	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C631	1-124-589-11	s ELECT 47uF 20% 16V
C632	1-124-589-11	s ELECT 47uF 20% 16V
C634	1-161-494-00	s CERAMIC 0.022uF 25V
C640	1-161-494-00	s CERAMIC 0.022uF 25V
C641	1-161-494-00	s CERAMIC 0.022uF 25V
D501	8-719-911-19	s DIODE 1SS119
D502	8-719-911-19	s DIODE 1SS119
D503	8-719-911-19	s DIODE 1SS119
D504	8-719-911-19	s DIODE 1SS119
D505	8-719-911-19	s DIODE 1SS119
D506	8-719-911-19	s DIODE 1SS119
D507	8-719-911-19	s DIODE 1SS119
D508	8-719-911-19	s DIODE 1SS119
D509	8-719-911-19	s DIODE 1SS119
D510	8-719-911-19	s DIODE 1SS119
D511	8-719-815-59	s DIODE 1S1555-S
D514	8-719-104-10	s DIODE 1SS99
D515	8-719-104-10	s DIODE 1SS99
D516	8-719-104-10	s DIODE 1SS99
D517	8-719-104-10	s DIODE 1SS99
D520	8-719-911-19	s DIODE 1SS119
D521	8-719-911-19	s DIODE 1SS119
D523	8-719-911-19	s DIODE 1SS119
D524	8-719-911-19	s DIODE 1SS119
DL506	1-415-402-11	s DELAY LINE 300nS
FL502	1-235-470-11	s FILTER, LOW-PASS
FL503	1-235-619-11	s FILTER, BANDPASS 4.27MHz
FL504	1-235-618-21	s FILTER, BANDPASS 3.58MHz
IC506	8-749-901-14	s IC BX-1250L
IC508	8-741-126-40	s IC BX-1264
IC509	8-752-006-12	s IC CX20061
IC511	8-759-908-59	s IC CX859
IC512	8-750-000-46	s IC CX872
IC514	8-749-901-06	s IC BX-1251L
IC518	8-759-200-60	s IC TA7060AP
IC519	8-752-006-12	s IC CX20061
L506	1-410-482-31	s INDUCTOR 100uH
L507	1-410-482-31	s INDUCTOR 100uH
L508	1-410-482-31	s INDUCTOR 100uH
L509	1-410-482-31	s INDUCTOR 100uH
L510	1-410-478-11	s INDUCTOR 47uH
L511	1-410-068-21	s INDUCTOR 5.6mH
L513	1-410-068-21	s INDUCTOR 5.6mH
L516	1-410-482-31	s INDUCTOR 100uH
L517	1-410-482-31	s INDUCTOR 100uH

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-70 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
L518	1-410-482-31	s INDUCTOR 100uH
L519	1-410-482-31	s INDUCTOR 100uH
L520	1-410-482-31	s INDUCTOR 100uH
L524	1-410-470-11	s INDUCTOR 10uH
Q508	8-729-603-50	s TRANSISTOR 2SC403SP
Q509	8-729-900-89	s TRANSISTOR DTC144ES
Q520	8-729-119-76	s TRANSISTOR 2SA1175
Q521	8-729-603-50	s TRANSISTOR 2SC403SP
Q522	8-729-603-50	s TRANSISTOR 2SC403SP
Q523	8-729-201-05	s TRANSISTOR 2SC2878-B
Q524	8-729-201-05	s TRANSISTOR 2SC2878-B
Q525	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q526	8-729-603-50	s TRANSISTOR 2SC403SP
Q527	8-729-119-76	s TRANSISTOR 2SA1175
Q528	8-729-201-05	s TRANSISTOR 2SC2878-B
Q529	8-729-201-05	s TRANSISTOR 2SC2878-B
Q530	8-729-201-05	s TRANSISTOR 2SC2878-B
Q531	8-729-201-05	s TRANSISTOR 2SC2878-B
Q532	8-729-900-89	s TRANSISTOR DTC144ES
Q533	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q534	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q535	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q536	8-729-603-50	s TRANSISTOR 2SC403SP
Q537	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q538	8-729-603-50	s TRANSISTOR 2SC403SP
Q539	8-729-201-05	s TRANSISTOR 2SC2878-B
Q540	8-729-900-89	s TRANSISTOR DTC144ES
Q541	8-729-603-50	s TRANSISTOR 2SC403SP
Q542	8-729-603-50	s TRANSISTOR 2SC403SP
Q543	8-729-603-50	s TRANSISTOR 2SC403SP
Q544	8-729-603-50	s TRANSISTOR 2SC403SP
Q545	8-729-603-50	s TRANSISTOR 2SC403SP
Q546	8-729-900-89	s TRANSISTOR DTC144ES
Q547	8-729-603-50	s TRANSISTOR 2SC403SP
Q548	8-729-603-50	s TRANSISTOR 2SC403SP
Q549	8-729-603-50	s TRANSISTOR 2SC403SP
Q550	8-729-900-89	s TRANSISTOR DTC144ES
R593	1-247-889-00	s CARBON 270K 5% 1/4W
R623	1-247-885-00	s CARBON 180K 5% 1/4W
RV504	1-228-989-00	s RES, ADJ, METAL 470
RV505	1-228-994-00	s RES, ADJ, METAL 10K
RV506	1-228-995-00	s RES, ADJ, METAL 22K
RV507	1-228-994-00	s RES, ADJ, METAL 10K
RV508	1-228-993-00	s RES, ADJ, METAL 4.7K
RV509	1-228-995-00	s RES, ADJ, METAL 22K
RV510	1-228-994-00	s RES, ADJ, METAL 10K
RV511	1-228-993-00	s RES, ADJ, METAL 4.7K
RV513	1-228-991-00	s RES, ADJ, METAL 2.2K
RV517	1-228-990-00	s RES, ADJ, METAL 1K
RV518	1-228-993-00	s RES, ADJ, METAL 4.7K
RV519	1-228-995-00	s RES, ADJ, METAL 22K
RV523	1-228-991-00	s RES, ADJ, METAL 2.2K
S501	1-552-509-00	s SWITCH, DIP 1-CKT
T502	1-426-185-11	s TRANSFORMER, BURST AMP

DP-62 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-733-11	o PRINTED CIRCUIT BOARD, DP-62
CN3	1-535-761-11	o CABLE, JUMPER 23P
D201	8-719-942-19	s LED LB402VK
D202	8-719-942-19	s LED LB402VK
D203	8-719-942-19	s LED LB402VK
D204	8-719-942-19	s LED LB402VK
S201	1-552-539-00	s SWITCH, TACTILE
S202	1-552-539-00	s SWITCH, TACTILE

DUS-92 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-615-924-11	o PRINTED CIRCUIT BOARD, DUS-92
H1003	8-825-578-22	s HEAD, ACE

DUS-147 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-261-11	o PRINTED CIRCUIT BOARD, DUS-147

DUS-271 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-480-11	o PRINTED CIRCUIT BOARD, DUS-271
S1	1-571-083-21	s SWITCH, SLIDE
S2	1-571-083-21	s SWITCH, SLIDE

EC-32 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-475-11	o PRINTED CIRCUIT BOARD, EC-32
1pc	8-825-514-20	s HEAD, CTL PP170-58

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

HN-84 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-726-11	o PRINTED CIRCUIT BOARD, HN-84
1pc	8-825-771-31	s HEAD, TIME CODE PP295-58

HN-130 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-474-11	o PRINTED CIRCUIT BOARD, HN-130
1pc	8-825-544-20	s HEAD, ERASE

HP-42 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-477-11	o PRINTED CIRCUIT BOARD, HP-42
C1	1-161-379-00	s CERAMIC 0.01uF 20% 25V
RV1	1-237-703-11	s RES, VAR, CARBON 2K/2K
RV2	1-237-703-11	s RES, VAR, CARBON 2K/2K

KY-159 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6717-525-A	o MOUNTED CIRCUIT BOARD, KY-159
4pcs	3-733-617-01	s HOLDER, BUZZER
4pcs	3-733-618-01	s PIN, BUZZER HOLDER
1pc	3-718-657-01	o HOLDER, LED
1pc	3-733-652-01	o SPACER, 7 SEG
1pc	7-684-023-04	s N 3, TYPE 2
1pc	7-682-649-09	s SCREW +PS 3X10
BT1	1-528-229-11	o BATTERY, LITHIUM CR-2450
C1	1-124-480-11	s ELECT 470uF 20% 25V
C2	1-162-210-31	s CERAMIC 30PF 5% 50V
C3	1-162-210-31	s CERAMIC 30PF 5% 50V
C5	1-124-480-11	s ELECT 470uF 20% 25V
C6	1-124-120-11	s ELECT 220uF 20% 25V
C8	1-125-443-11	s DOUBLE LAYERS 0.047FARAD 5.5V
C9	1-126-094-11	s ELECT 4.7uF 20% 35V
C10	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C12	1-162-210-31	s CERAMIC 30PF 5% 50V
C13	1-162-210-31	s CERAMIC 30PF 5% 50V
C15	1-124-477-11	s ELECT 47uF 20% 25V
C17	1-126-094-11	s ELECT 4.7uF 20% 35V
D1	8-719-911-19	s DIODE 1SS119
D9	8-719-911-19	s DIODE 1SS119
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-911-19	s DIODE 1SS119
D13	8-719-911-19	s DIODE 1SS119
D14	8-719-911-19	s DIODE 1SS119
D15	8-719-911-19	s DIODE 1SS119
D16	8-719-911-19	s DIODE 1SS119
D17	8-719-911-19	s DIODE 1SS119
D18	8-719-911-19	s DIODE 1SS119
D19	8-719-911-19	s DIODE 1SS119
D20	8-719-911-19	s DIODE 1SS119
D21	8-719-911-19	s DIODE 1SS119
D22	8-719-911-19	s DIODE 1SS119
D23	8-719-911-19	s DIODE 1SS119
D24	8-719-911-19	s DIODE 1SS119
D25	8-719-911-19	s DIODE 1SS119
D26	8-719-911-19	s DIODE 1SS119
D27	8-719-911-19	s DIODE 1SS119
D28	8-719-911-19	s DIODE 1SS119
D29	8-719-104-10	s DIODE 1SS99
D45	8-719-911-19	s DIODE 1SS119
D46	8-719-911-19	s DIODE 1SS119
D48	8-719-200-02	s DIODE 10E2
D49	8-719-911-19	s DIODE 1SS119
D51	8-719-104-10	s DIODE 1SS99
D52	8-719-911-19	s DIODE 1SS119
D54	8-719-911-19	s DIODE 1SS119
D55	8-719-911-19	s DIODE 1SS119
D101	8-719-939-39	s LED GL5HD8, RED
D102	8-719-802-11	s LED TLUG154, GRN
D103	8-719-939-39	s LED GL5HD8, RED
D104	8-719-939-39	s LED GL5HD8, RED
D105	8-719-939-39	s LED GL5HD8, RED
D106	8-719-939-39	s LED GL5HD8, RED
D107	8-719-939-39	s LED GL5HD8, RED

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(KY-159 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D108	8-719-939-39	s LED GL5HD8, RED
D109	8-719-939-39	s LED GL5HD8, RED
D110	8-719-939-39	s LED GL5HD8, RED
D111	8-719-939-39	s LED GL5HD8, RED
D112	8-719-939-39	s LED GL5HD8, RED
D113	8-719-939-39	s LED GL5HD8, RED
D114	8-719-820-28	s LED TLG-256, GRN
D115	8-719-820-28	s LED TLG-256, GRN
D116	8-719-939-39	s LED GL5HD8, RED
D117	8-719-802-11	s LED TLUG154, GRN
IC1	8-759-605-23	s IC M50747H-601SP
IC2	8-759-645-16	s IC M54516P
IC3	8-759-645-16	s IC M54516P
IC4	8-759-645-16	s IC M54516P
IC5	8-759-600-68	s IC M54562P
IC6	8-759-982-21	s IC RC78L05A
IC7	8-759-937-29	s IC MB88201H-539N
IC8	8-759-604-35	s IC M5F78M05
Q2	8-729-900-67	s TRANSISTOR DTA124XS
Q3	8-729-900-67	s TRANSISTOR DTA124XS
Q4	8-729-900-67	s TRANSISTOR DTA124XS
Q5	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q8	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q9	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q10	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q11	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q12	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q13	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q14	8-719-903-02	s TRANSISTOR DTA143XS-TP
Q15	8-729-900-02	s TRANSISTOR DTC144ES
R24	1-249-404-00	s CARBON 82 5% 1/4W
R25	1-249-404-00	s CARBON 82 5% 1/4W
R26	1-249-404-00	s CARBON 82 5% 1/4W
R27	1-249-404-00	s CARBON 82 5% 1/4W
R28	1-249-404-00	s CARBON 82 5% 1/4W
R29	1-249-404-00	s CARBON 82 5% 1/4W
R30	1-249-404-00	s CARBON 82 5% 1/4W
R31	1-249-404-00	s CARBON 82 5% 1/4W
R32	1-247-903-00	s CARBON 1M 5% 1/4W
RB1	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB2	1-231-410-00	s RESISTOR BLOCK 10Kx8
S1	1-552-539-00	s SWITCH, TACTILE
S9	1-552-539-00	s SWITCH, TACTILE
S10	1-552-539-00	s SWITCH, TACTILE
S11	1-552-539-00	s SWITCH, TACTILE
S12	1-552-539-00	s SWITCH, TACTILE
S13	1-552-539-00	s SWITCH, TACTILE
S14	1-552-539-00	s SWITCH, TACTILE
S15	1-552-539-00	s SWITCH, TACTILE
S16	1-552-539-00	s SWITCH, TACTILE
S17	1-552-539-00	s SWITCH, TACTILE
S18	1-552-539-00	s SWITCH, TACTILE
S19	1-552-539-00	s SWITCH, TACTILE
S20	1-516-961-00	s SWITCH, LEVER SLIDE
S23	1-552-539-00	s SWITCH, TACTILE
S24	1-552-539-00	s SWITCH, TACTILE

(KY-159 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
S25	1-552-539-00	s SWITCH, TACTILE
S26	1-552-539-00	s SWITCH, TACTILE
S27	1-552-539-00	s SWITCH, TACTILE
S28	1-516-995-00	s SWITCH, LEVER SLIDE
S29	1-552-539-00	s SWITCH, TACTILE
X1	1-567-869-11	s RESONATOR, CERAMIC 9.83MHz
X2	1-567-192-11	s RESONATOR, CERAMIC 4.00MHz

LM-13 BOARD		

Ref. No. or Q'ty	Part No.	SP Description
	1-618-600-11	o PRINTED CIRCUIT BOARD, LM-13
M1003	1-541-376-11	s MOTOR, DC DNR-4700A "THREADING"

LP-41 BOARD		

Ref. No. or Q'ty	Part No.	SP Description
	1-623-101-11	o PRINTED CIRCUIT BOARD, LP-41
D1	8-719-800-89	s LED TLY255, YEL
D2	8-719-800-89	s LED TLY255, YEL
D3	8-719-800-89	s LED TLY255, YEL
R1	1-247-706-11	s CARBON 330 5% 1/4W
R2	1-247-706-11	s CARBON 330 5% 1/4W
R3	1-247-706-11	s CARBON 330 5% 1/4W

MC-28 BOARD		

Ref. No. or Q'ty	Part No.	SP Description
	1-622-222-11	o PRINTED CIRCUIT BOARD, MC-28
C1	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C2	1-161-379-00	s CERAMIC 0.01uF 20% 25V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

MD-59 BOARD

Ref. No.

or Q'ty Part No. SP Description

1pc A-6727-035-A o MOUNTED CIRCUIT BOARD, MD-59
1pc 3-733-657-01 o SHIELD (LID), MD
2pcs 3-621-124-00 s SPACER

C1 1-124-360-00 s ELECT 1000uF 20% 16V
C2 1-124-360-00 s ELECT 1000uF 20% 16V
C3 1-124-589-11 s ELECT 47uF 20% 16V
C4 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C5 1-126-101-11 s ELECT 100uF 20% 16V

C6 1-126-101-11 s ELECT 100uF 20% 16V
C9 1-162-732-11 s CERAMIC 820PF 1% 50V
C10 1-124-584-00 s ELECT 100uF 20% 10V
C11 1-124-589-11 s ELECT 47uF 20% 16V
C12 1-161-379-00 s CERAMIC 0.01uF 20% 25V

C17 1-124-584-00 s ELECT 100uF 20% 10V
C18 1-124-584-00 s ELECT 100uF 20% 10V
C20 1-124-584-00 s ELECT 100uF 20% 10V
C22 1-124-589-11 s ELECT 47uF 20% 16V
C23 1-161-494-00 s CERAMIC 0.022uF 25V

C24 1-124-589-11 s ELECT 47uF 20% 16V
C25 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C29 1-126-157-11 s ELECT 10uF 20% 16V
C30 1-124-589-11 s ELECT 47uF 20% 16V
C32 1-126-157-11 s ELECT 10uF 20% 16V

C33 1-126-157-11 s ELECT 10uF 20% 16V
C35 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C36 1-126-157-11 s ELECT 10uF 20% 16V
C37 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C38 1-124-589-11 s ELECT 47uF 20% 16V

C41 1-124-120-11 s ELECT 220uF 20% 25V
C42 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C43 1-126-157-11 s ELECT 10uF 20% 16V
C44 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C45 1-124-472-11 s ELECT 470uF 20% 10V

C46 1-131-356-00 s TANTALUM 3.3uF 10% 25V
C48 1-124-360-00 s ELECT 1000uF 20% 16V
C49 1-131-374-00 s TANTALUM 33uF 10% 16V
C51 1-161-494-00 s CERAMIC 0.022uF 25V
C52 1-124-589-11 s ELECT 47uF 20% 16V

C55 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C56 1-124-589-11 s ELECT 47uF 20% 16V
C57 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C58 1-124-589-11 s ELECT 47uF 20% 16V
C59 1-124-589-11 s ELECT 47uF 20% 16V

C60 1-162-726-11 s CERAMIC 470PF 1% 50V
C63 1-124-589-11 s ELECT 47uF 20% 16V
C64 1-161-494-00 s CERAMIC 0.022uF 25V
C69 1-162-728-11 s CERAMIC 560PF 1% 50V
C70 1-161-379-00 s CERAMIC 0.01uF 20% 25V

C73 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C76 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C77 1-161-494-00 s CERAMIC 0.022uF 25V
C79 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C84 1-161-379-00 s CERAMIC 0.01uF 20% 25V

C85 1-161-494-00 s CERAMIC 0.022uF 25V
C86 1-161-494-00 s CERAMIC 0.022uF 25V
C89 1-126-157-11 s ELECT 10uF 20% 16V
C90 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C91 1-124-589-11 s ELECT 47uF 20% 16V

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Ref. No.

or Q'ty Part No. SP Description

C92 1-126-094-11 s ELECT 4.7uF 20% 35V
C93 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C94 1-124-589-11 s ELECT 47uF 20% 16V
C95 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C96 1-124-584-00 s ELECT 100uF 20% 10V

C97 1-161-494-00 s CERAMIC 0.022uF 25V
C98 1-161-494-00 s CERAMIC 0.022uF 25V
C99 1-126-101-11 s ELECT 100uF 20% 16V
C100 1-161-494-00 s CERAMIC 0.022uF 25V
C101 1-161-494-00 s CERAMIC 0.022uF 25V

C102 1-124-589-11 s ELECT 47uF 20% 16V
C103 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C104 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C105 1-124-589-11 s ELECT 47uF 20% 16V
C106 1-161-494-00 s CERAMIC 0.022uF 25V

C112 1-126-157-11 s ELECT 10uF 20% 16V
C113 1-126-162-11 s ELECT 3.3uF 20% 50V
C115 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C116 1-162-732-11 s CERAMIC 820PF 1% 50V
C117 1-126-176-11 s ELECT 220uF 20% 10V

C119 1-126-176-11 s ELECT 220uF 20% 10V
C121 1-124-234-00 s ELECT 22uF 20% 16V
C201 1-124-589-11 s ELECT 47uF 20% 16V
C202 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C203 1-126-160-11 s ELECT 1uF 20% 50V

C204 1-126-157-11 s ELECT 10uF 20% 16V
C209 1-126-157-11 s ELECT 10uF 20% 16V
C210 1-126-157-11 s ELECT 10uF 20% 16V
C211 1-126-157-11 s ELECT 10uF 20% 16V
C212 1-126-157-11 s ELECT 10uF 20% 16V

C213 1-161-494-00 s CERAMIC 0.022uF 25V
C214 1-126-157-11 s ELECT 10uF 20% 16V
C215 1-126-157-11 s ELECT 10uF 20% 16V
C216 1-161-494-00 s CERAMIC 0.022uF 25V
C217 1-162-728-11 s CERAMIC 560PF 1% 50V

C218 1-126-157-11 s ELECT 10uF 20% 16V
C219 1-126-160-11 s ELECT 1uF 20% 50V
C220 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C221 1-124-589-11 s ELECT 47uF 20% 16V
C222 1-101-890-00 s CERAMIC 75PF 5% 50V

C223 1-161-494-00 s CERAMIC 0.022uF 25V
C224 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C225 1-124-589-11 s ELECT 47uF 20% 16V
C226 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C227 1-124-589-11 s ELECT 47uF 20% 16V

C228 1-161-494-00 s CERAMIC 0.022uF 25V
C230 1-161-494-00 s CERAMIC 0.022uF 25V
C231 1-161-494-00 s CERAMIC 0.022uF 25V
C233 1-124-589-11 s ELECT 47uF 20% 16V
C234 1-131-349-00 s TANTALUM 2.2uF 10% 35V

C235 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C237 1-131-349-00 s TANTALUM 2.2uF 10% 35V
C240 1-109-546-00 s MICA 300PF 5% 100V
C241 1-109-548-00 s MICA 360PF 5% 100V
C242 1-131-345-00 s TANTALUM 0.47uF 10% 35V

C243 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C244 1-161-379-00 s CERAMIC 0.01uF 20% 25V
C245 1-161-494-00 s CERAMIC 0.022uF 25V
C247 1-124-589-11 s ELECT 47uF 20% 16V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C248	1-126-176-11	s ELECT 220uF 20% 10V
C249	1-126-157-11	s ELECT 10uF 20% 16V
C250	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C253	1-161-494-00	s CERAMIC 0.022uF 25V
C254	1-161-494-00	s CERAMIC 0.022uF 25V
C255	1-161-494-00	s CERAMIC 0.022uF 25V
C256	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C257	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C258	1-161-494-00	s CERAMIC 0.022uF 25V
C259	1-161-494-00	s CERAMIC 0.022uF 25V
C260	1-161-494-00	s CERAMIC 0.022uF 25V
C262	1-126-162-11	s ELECT 3.3uF 20% 50V
C263	1-161-494-00	s CERAMIC 0.022uF 25V
C264	1-124-589-11	s ELECT 47uF 20% 16V
C276	1-126-160-11	s ELECT 1uF 20% 50V
C401	1-126-101-11	s ELECT 100uF 20% 16V
C402	1-124-589-11	s ELECT 47uF 20% 16V
C403	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C407	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C409	1-124-589-11	s ELECT 47uF 20% 16V
C410	1-161-494-00	s CERAMIC 0.022uF 25V
C411	1-126-103-11	s ELECT 470uF 20% 16V
C412	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C413	1-126-101-11	s ELECT 100uF 20% 16V
C416	1-124-589-11	s ELECT 47uF 20% 16V
C417	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C418	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C419	1-126-157-11	s ELECT 10uF 20% 16V
C420	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C422	1-124-584-00	s ELECT 100uF 20% 10V
C423	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C427	1-124-225-00	s ELECT 100uF 20% 6.3V
C431	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C432	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C434	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C435	1-124-589-11	s ELECT 47uF 20% 16V
C436	1-124-589-11	s ELECT 47uF 20% 16V
C437	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C438	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C439	1-126-157-11	s ELECT 10uF 20% 16V
C441	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C443	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C444	1-124-584-00	s ELECT 100uF 20% 10V
C445	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C449	1-124-225-00	s ELECT 100uF 20% 6.3V
C461	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C463	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C464	1-126-157-11	s ELECT 10uF 20% 16V
C465	1-161-494-00	s CERAMIC 0.022uF 25V
C466	1-126-101-11	s ELECT 100uF 20% 16V
C467	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C469	1-126-157-11	s ELECT 10uF 20% 16V
C470	1-161-494-00	s CERAMIC 0.022uF 25V
C471	1-126-157-11	s ELECT 10uF 20% 16V
C472	1-126-157-11	s ELECT 10uF 20% 16V
C473	1-126-157-11	s ELECT 10uF 20% 16V
C476	1-126-157-11	s ELECT 10uF 20% 16V
C477	1-126-157-11	s ELECT 10uF 20% 16V
C478	1-161-379-00	s CERAMIC 0.01uF 20% 25V

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Ref. No. or Q'ty	Part No.	SP Description
C479	1-126-157-11	s ELECT 10uF 20% 16V
C480	1-126-157-11	s ELECT 10uF 20% 16V
C481	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C484	1-126-157-11	s ELECT 10uF 20% 16V
C485	1-126-157-11	s ELECT 10uF 20% 16V
C486	1-126-157-11	s ELECT 10uF 20% 16V
C487	1-126-157-11	s ELECT 10uF 20% 16V
C488	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C489	1-126-157-11	s ELECT 10uF 20% 16V
C490	1-126-157-11	s ELECT 10uF 20% 16V
C491	1-124-225-00	s ELECT 100uF 20% 6.3V
C492	1-161-494-00	s CERAMIC 0.022uF 25V
C494	1-126-157-11	s ELECT 10uF 20% 16V
C495	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C496	1-126-157-11	s ELECT 10uF 20% 16V
C497	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C498	1-124-589-11	s ELECT 47uF 20% 16V
C499	1-124-225-00	s ELECT 100uF 20% 6.3V
C503	1-124-225-00	s ELECT 100uF 20% 6.3V
C505	1-126-154-11	s ELECT 47uF 20% 6.3V
C506	1-126-101-11	s ELECT 100uF 20% 16V
C507	1-126-157-11	s ELECT 10uF 20% 16V
C511	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C512	1-124-589-11	s ELECT 47uF 20% 16V
C513	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C514	1-124-589-11	s ELECT 47uF 20% 16V
C515	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C517	1-126-157-11	s ELECT 10uF 20% 16V
C519	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C520	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C522	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C523	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C524	1-161-494-00	s CERAMIC 0.022uF 25V
C525	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C526	1-124-589-11	s ELECT 47uF 20% 16V
C527	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C528	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C529	1-162-728-11	s CERAMIC 560PF 1% 50V
C530	1-124-472-11	s ELECT 470uF 20% 10V
C532	1-124-234-00	s ELECT 22uF 20% 16V
C701	1-161-494-00	s CERAMIC 0.022uF 25V
C702	1-102-971-00	s CERAMIC 82PF 5% 50V
C708	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C709	1-161-494-00	s CERAMIC 0.022uF 25V
C710	1-124-589-11	s ELECT 47uF 20% 16V
CF401	1-567-390-11	s FILTER, CERAMIC
CF402	1-567-390-11	s FILTER, CERAMIC
CN162	1-506-471-11	s CONNECTOR, 6P, MALE
CV401	1-141-246-00	s CAP, TRIMMER 20PF
CV701	1-141-246-00	s CAP, TRIMMER 20PF
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-109-44	s DIODE 1SS99-1
D3	8-719-109-44	s DIODE 1SS99-1
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D7	8-719-911-19	s DIODE 1SS119

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
D8	8-719-911-19	s DIODE 1SS119
D9	8-719-109-75	s DIODE RD4.3ES-B2
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-911-19	s DIODE 1SS119
D13	8-719-911-19	s DIODE 1SS119
D204	8-719-911-19	s DIODE 1SS119
D205	8-719-915-43	s DIODE, VARICAP FC54M
D206	8-719-109-44	s DIODE 1SS99-1
D207	8-719-911-19	s DIODE 1SS119
D208	8-719-911-19	s DIODE 1SS119
D209	8-719-911-19	s DIODE 1SS119
D210	8-719-911-19	s DIODE 1SS119
D212	8-719-911-19	s DIODE 1SS119
D401	8-719-911-19	s DIODE 1SS119
D402	8-719-911-19	s DIODE 1SS119
D403	8-719-911-19	s DIODE 1SS119
D404	8-719-911-19	s DIODE 1SS119
D405	8-719-911-19	s DIODE 1SS119
D805	8-719-911-19	s DIODE 1SS119
DL201	1-415-402-11	s DELAY LINE 300nS
DL401	1-415-348-21	s DELAY LINE 280nS
DL402	1-415-348-21	s DELAY LINE 280nS
DL403	1-415-348-21	s DELAY LINE 280nS
DL404	1-415-545-11	s DELAY LINE 350nS
DL405	1-415-551-11	s DELAY LINE 140nS
FL1	1-236-040-11	s FILTER, LOW-PASS
FL2	1-235-613-11	s FILTER, HIGH-PASS
FL3	1-231-580-21	s FILTER, HIGH-PASS
FL201	1-236-041-11	s FILTER, LOW-PASS
FL401	1-235-757-11	s FILTER, LOW-PASS
FL402	1-235-757-11	s FILTER, LOW-PASS
FL403	1-235-757-11	s FILTER, LOW-PASS
FL404	1-235-617-11	s FILTER, LOW-PASS
IC1	8-752-006-12	s IC CX20061
IC2	8-759-200-60	s IC TA7060AP
IC3	8-751-310-10	s IC CX-131A
IC4	8-741-125-70	s IC BX-1257
IC5	8-752-006-12	s IC CX20061
IC6	8-749-901-11	s IC BX-1246L
IC7	8-759-982-21	s IC RC78L05A
IC8	8-759-982-25	s IC RC78L09A
IC201	8-752-006-12	s IC CX20061
IC202	8-752-006-12	s IC CX20061
IC203	8-751-880-00	s IC CX188
IC204	8-752-006-12	s IC CX20061
IC401	8-759-400-06	s IC AN608P
IC402	8-752-320-32	s IC CXL5001P
IC403	8-759-402-33	s IC AN607P
IC404	8-752-320-32	s IC CXL5001P
IC405	8-759-400-06	s IC AN608P
IC406	8-752-201-30	s IC CX22013
IC407	8-752-030-30	s IC CXA1020P
IC408	8-759-969-13	s IC SN16913P
IC409	8-759-981-64	s IC LM2903DQ
IC410	8-759-602-80	s IC M5215L
IC411	8-752-201-30	s IC CX22013
IC412	8-743-890-00	s IC BX-389

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Ref. No. or Q'ty	Part No.	SP Description
IC413	8-759-602-80	s IC M5215L
L2	1-410-482-31	s INDUCTOR 100uH
L3	1-410-482-31	s INDUCTOR 100uH
L4	1-410-482-31	s INDUCTOR 100uH
L8	1-410-087-31	s INDUCTOR 10mH
L9	1-410-482-31	s INDUCTOR 100uH
L10	1-410-482-31	s INDUCTOR 100uH
L12	1-410-482-31	s INDUCTOR 100uH
L13	1-410-482-31	s INDUCTOR 100uH
L14	1-410-482-31	s INDUCTOR 100uH
L19	1-410-473-11	s INDUCTOR 18uH
L20	1-410-482-31	s INDUCTOR 100uH
L21	1-410-482-31	s INDUCTOR 100uH
L22	1-410-482-31	s INDUCTOR 100uH
L24	1-410-482-31	s INDUCTOR 100uH
L201	1-410-482-31	s INDUCTOR 100uH
L203	1-410-482-31	s INDUCTOR 100uH
L205	1-410-482-31	s INDUCTOR 100uH
L206	1-410-482-31	s INDUCTOR 100uH
L207	1-410-478-11	s INDUCTOR 47uH
L208	1-410-482-31	s INDUCTOR 100uH
L209	1-410-087-31	s INDUCTOR 10mH
L210	1-410-478-11	s INDUCTOR 47uH
L212	1-410-482-31	s INDUCTOR 100uH
L215	1-410-478-11	s INDUCTOR 47uH
L401	1-410-482-31	s INDUCTOR 100uH
L403	1-410-482-31	s INDUCTOR 100uH
L404	1-410-482-31	s INDUCTOR 100uH
L405	1-410-482-31	s INDUCTOR 100uH
L406	1-410-482-31	s INDUCTOR 100uH
L407	1-410-482-31	s INDUCTOR 100uH
L408	1-410-482-31	s INDUCTOR 100uH
L409	1-410-470-11	s INDUCTOR 10uH
L410	1-410-482-31	s INDUCTOR 100uH
L411	1-410-471-11	s INDUCTOR 12uH
L412	1-410-470-11	s INDUCTOR 10uH
L413	1-410-482-31	s INDUCTOR 100uH
L414	1-410-476-11	s INDUCTOR 33uH
L415	1-410-482-31	s INDUCTOR 100uH
L416	1-410-482-31	s INDUCTOR 100uH
L420	1-410-482-31	s INDUCTOR 100uH
L421	1-410-482-31	s INDUCTOR 100uH
L422	1-410-470-11	s INDUCTOR 10uH
L423	1-410-482-31	s INDUCTOR 100uH
L424	1-410-482-31	s INDUCTOR 100uH
L426	1-410-471-11	s INDUCTOR 12uH
L701	1-410-471-11	s INDUCTOR 12uH
L702	1-410-482-31	s INDUCTOR 100uH
LV1	1-407-566-00	s COIL, VAR 3.3uH
Q1	8-729-603-50	s TRANSISTOR 2SC403SP
Q2	8-729-603-50	s TRANSISTOR 2SC403SP
Q3	8-729-603-50	s TRANSISTOR 2SC403SP
Q4	8-729-201-05	s TRANSISTOR 2SC2878-B
Q5	8-729-603-50	s TRANSISTOR 2SC403SP
Q6	8-729-603-50	s TRANSISTOR 2SC403SP
Q7	8-729-603-50	s TRANSISTOR 2SC403SP
Q8	8-729-603-50	s TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
Q9	8-729-201-05	s TRANSISTOR 2SC2878-B
Q10	8-729-603-50	s TRANSISTOR 2SC403SP
Q11	8-729-603-50	s TRANSISTOR 2SC403SP
Q12	8-729-603-50	s TRANSISTOR 2SC403SP
Q13	8-729-603-50	s TRANSISTOR 2SC403SP
Q14	8-729-900-89	s TRANSISTOR DTC144ES
Q15	8-729-603-50	s TRANSISTOR 2SC403SP
Q16	8-729-603-50	s TRANSISTOR 2SC403SP
Q17	8-729-603-50	s TRANSISTOR 2SC403SP
Q18	8-729-603-50	s TRANSISTOR 2SC403SP
Q19	8-729-603-50	s TRANSISTOR 2SC403SP
Q20	8-729-603-50	s TRANSISTOR 2SC403SP
Q21	8-729-201-05	s TRANSISTOR 2SC2878-B
Q22	8-729-603-50	s TRANSISTOR 2SC403SP
Q23	8-729-119-76	s TRANSISTOR 2SA1175
Q24	8-729-119-76	s TRANSISTOR 2SA1175
Q25	8-729-603-50	s TRANSISTOR 2SC403SP
Q26	8-729-603-50	s TRANSISTOR 2SC403SP
Q27	8-729-603-50	s TRANSISTOR 2SC403SP
Q28	8-729-201-05	s TRANSISTOR 2SC2878-B
Q29	8-729-201-05	s TRANSISTOR 2SC2878-B
Q30	8-729-201-05	s TRANSISTOR 2SC2878-B
Q31	8-729-201-05	s TRANSISTOR 2SC2878-B
Q32	8-729-201-05	s TRANSISTOR 2SC2878-B
Q33	8-729-900-89	s TRANSISTOR DTC144ES
Q34	8-729-113-33	s TRANSISTOR 2SB733-4
Q35	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q36	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q37	8-729-603-50	s TRANSISTOR 2SC403SP
Q38	8-729-119-76	s TRANSISTOR 2SA1175
Q41	8-729-603-50	s TRANSISTOR 2SC403SP
Q42	8-729-603-50	s TRANSISTOR 2SC403SP
Q43	8-729-603-50	s TRANSISTOR 2SC403SP
Q44	8-729-900-89	s TRANSISTOR DTC144ES
Q45	8-729-201-05	s TRANSISTOR 2SC2878-B
Q201	8-729-603-50	s TRANSISTOR 2SC403SP
Q202	8-729-201-05	s TRANSISTOR 2SC2878-B
Q203	8-729-603-50	s TRANSISTOR 2SC403SP
Q204	8-729-603-50	s TRANSISTOR 2SC403SP
Q205	8-729-603-50	s TRANSISTOR 2SC403SP
Q206	8-729-603-50	s TRANSISTOR 2SC403SP
Q207	8-729-119-76	s TRANSISTOR 2SA1175
Q208	8-729-603-50	s TRANSISTOR 2SC403SP
Q209	8-729-603-50	s TRANSISTOR 2SC403SP
Q210	8-729-603-50	s TRANSISTOR 2SC403SP
Q211	8-729-603-50	s TRANSISTOR 2SC403SP
Q212	8-729-119-76	s TRANSISTOR 2SA1175
Q213	8-729-900-97	s TRANSISTOR 2SC1740S-ET
Q214	8-729-603-50	s TRANSISTOR 2SC403SP
Q215	8-729-603-50	s TRANSISTOR 2SC403SP
Q216	8-729-603-50	s TRANSISTOR 2SC403SP
Q217	8-729-201-05	s TRANSISTOR 2SC2878-B
Q218	8-729-603-50	s TRANSISTOR 2SC403SP
Q222	8-729-173-38	s TRANSISTOR 2SA733-K
Q223	8-729-603-50	s TRANSISTOR 2SC403SP
Q401	8-729-603-50	s TRANSISTOR 2SC403SP
Q402	8-729-603-50	s TRANSISTOR 2SC403SP
Q403	8-729-603-50	s TRANSISTOR 2SC403SP
Q404	8-729-603-50	s TRANSISTOR 2SC403SP

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q405	8-729-603-50	s TRANSISTOR 2SC403SP
Q406	8-729-603-50	s TRANSISTOR 2SC403SP
Q407	8-729-119-76	s TRANSISTOR 2SA1175
Q408	8-729-119-76	s TRANSISTOR 2SA1175
Q409	8-729-603-50	s TRANSISTOR 2SC403SP
Q410	8-729-119-76	s TRANSISTOR 2SA1175
Q411	8-729-603-50	s TRANSISTOR 2SC403SP
Q412	8-729-603-50	s TRANSISTOR 2SC403SP
Q413	8-729-119-76	s TRANSISTOR 2SA1175
Q414	8-729-603-50	s TRANSISTOR 2SC403SP
Q415	8-729-119-76	s TRANSISTOR 2SA1175
Q416	8-729-603-50	s TRANSISTOR 2SC403SP
Q417	8-729-603-50	s TRANSISTOR 2SC403SP
Q418	8-729-603-50	s TRANSISTOR 2SC403SP
Q419	8-729-603-50	s TRANSISTOR 2SC403SP
Q420	8-729-603-50	s TRANSISTOR 2SC403SP
Q421	8-729-603-50	s TRANSISTOR 2SC403SP
Q422	8-729-603-50	s TRANSISTOR 2SC403SP
Q423	8-729-603-50	s TRANSISTOR 2SC403SP
Q424	8-729-603-50	s TRANSISTOR 2SC403SP
Q425	8-729-119-76	s TRANSISTOR 2SA1175
Q426	8-729-603-50	s TRANSISTOR 2SC403SP
Q427	8-729-603-50	s TRANSISTOR 2SC403SP
Q428	8-729-603-50	s TRANSISTOR 2SC403SP
Q429	8-729-603-50	s TRANSISTOR 2SC403SP
Q430	8-729-119-76	s TRANSISTOR 2SA1175
Q431	8-729-603-50	s TRANSISTOR 2SC403SP
Q432	8-729-603-50	s TRANSISTOR 2SC403SP
Q433	8-729-119-76	s TRANSISTOR 2SA1175
Q434	8-729-119-76	s TRANSISTOR 2SA1175
Q435	8-729-603-50	s TRANSISTOR 2SC403SP
Q436	8-729-603-50	s TRANSISTOR 2SC403SP
Q437	8-729-603-50	s TRANSISTOR 2SC403SP
Q438	8-729-603-50	s TRANSISTOR 2SC403SP
Q439	8-729-603-50	s TRANSISTOR 2SC403SP
Q440	8-729-603-50	s TRANSISTOR 2SC403SP
Q441	8-729-603-50	s TRANSISTOR 2SC403SP
Q442	8-729-119-78	s TRANSISTOR 2SC2785
Q701	8-729-603-50	s TRANSISTOR 2SC403SP
Q702	8-729-603-50	s TRANSISTOR 2SC403SP
Q801	8-729-113-33	s TRANSISTOR 2SB733-4
Q802	8-729-900-89	s TRANSISTOR DTC144ES
Q803	8-729-900-89	s TRANSISTOR DTC144ES
R48	1-247-852-11	s CARBON 7.5K 5% 1/4W
R60	1-247-893-11	s CARBON 390K 5% 1/4W
R138	1-532-679-21	s LINK, IC 0.6A
R241	1-247-903-00	s CARBON 1M 5% 1/4W
R465	1-247-903-00	s CARBON 1M 5% 1/4W
R805	1-532-679-21	s LINK, IC 0.6A
RV1	1-228-991-00	s RES, ADJ, METAL 2.2K
RV2	1-228-990-00	s RES, ADJ, METAL 1K
RV3	1-228-993-00	s RES, ADJ, METAL 4.7K
RV4	1-228-994-00	s RES, ADJ, METAL 10K
RV5	1-237-524-21	s RES, ADJ, METAL 1M
RV6	1-228-993-00	s RES, ADJ, METAL 4.7K
RV7	1-228-991-00	s RES, ADJ, METAL 2.2K
RV8	1-228-996-00	s RES, ADJ, METAL 47K
RV9	1-228-995-00	s RES, ADJ, METAL 22K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
RV10	1-228-991-00	s RES, ADJ, METAL 2.2K
RV12	1-228-991-00	s RES, ADJ, METAL 2.2K
RV13	1-228-991-00	s RES, ADJ, METAL 2.2K
RV201	1-228-993-00	s RES, ADJ, METAL 4.7K
RV202	1-228-993-00	s RES, ADJ, METAL 4.7K
RV203	1-228-993-00	s RES, ADJ, METAL 4.7K
RV401	1-228-995-00	s RES, ADJ, METAL 22K
RV402	1-228-991-00	s RES, ADJ, METAL 2.2K
RV403	1-228-993-00	s RES, ADJ, METAL 4.7K
RV404	1-228-995-00	s RES, ADJ, METAL 22K
RV405	1-228-991-00	s RES, ADJ, METAL 2.2K
RV406	1-228-991-00	s RES, ADJ, METAL 2.2K
RV407	1-228-991-00	s RES, ADJ, METAL 2.2K
RV408	1-228-999-00	s RES, ADJ, METAL 470K
RV409	1-228-995-00	s RES, ADJ, METAL 22K
RV410	1-228-991-00	s RES, ADJ, METAL 2.2K
RV411	1-228-991-00	s RES, ADJ, METAL 2.2K
RV412	1-230-504-11	s RES, ADJ, METAL 220
RV413	1-228-989-00	s RES, ADJ, METAL 470
RV414	1-228-991-00	s RES, ADJ, METAL 2.2K
T201	1-425-785-21	s TRANSFORMER, BURST AMP
TH1	1-800-200-00	s THERMISTOR S-3K
TH401	1-800-200-00	s THERMISTOR S-3K
TH402	1-800-200-00	s THERMISTOR S-3K
TH403	1-800-200-00	s THERMISTOR S-3K
X201	1-527-536-00	s CRYSTAL 3.579545MHz
X701	1-527-376-00	s CRYSTAL 3.579545MHz

MT-53 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-478-11	o PRINTED CIRCUIT BOARD, MT-53
D1	8-719-820-28	s LED TLG-256, GRN
D2	8-719-820-27	s LED TLY-256, YEL
D3	8-719-820-27	s LED TLY-256, YEL
D4	8-719-820-27	s LED TLY-256, YEL
D5	8-719-820-27	s LED TLY-256, YEL
D6	8-719-820-27	s LED TLY-256, YEL

NR-31 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6727-039-B	o MOUNTED CIRCUIT BOARD, NR-31
C1	1-124-477-11	s ELECT 47uF 20% 25V
C2	1-126-101-11	s ELECT 100uF 20% 16V
C3	1-136-230-00	s FILM 0.0022uF 3% 100V
C4	1-136-230-00	s FILM 0.0022uF 3% 100V
C5	1-136-257-00	s FILM 0.0039uF 3% 100V
C6	1-131-345-00	s TANTALUM 0.47uF 10% 35V
C8	1-136-155-00	s FILM 0.015uF 5% 50V
C10	1-136-169-00	s FILM 0.22uF 5% 50V
C11	1-136-163-00	s FILM 0.068uF 5% 50V
C13	1-130-339-00	s FILM 0.0056uF 3% 100V
C14	1-136-153-00	s FILM 0.01uF 5% 50V
C19	1-126-101-11	s ELECT 100uF 20% 16V
C23	1-123-875-11	s ELECT 10uF 20% 50V
C24	1-124-477-11	s ELECT 47uF 20% 25V
C25	1-124-120-11	s ELECT 220uF 20% 25V
C26	1-126-151-11	s ELECT, NONPOLAR 4.7uF 20% 16V
C27	1-126-151-11	s ELECT, NONPOLAR 4.7uF 20% 16V
C101	1-124-477-11	s ELECT 47uF 20% 25V
C102	1-126-101-11	s ELECT 100uF 20% 16V
C103	1-136-230-00	s FILM 0.0022uF 3% 100V
C104	1-136-230-00	s FILM 0.0022uF 3% 100V
C105	1-136-257-00	s FILM 0.0039uF 3% 100V
C106	1-131-345-00	s TANTALUM 0.47uF 10% 35V
C108	1-136-155-00	s FILM 0.015uF 5% 50V
C110	1-136-169-00	s FILM 0.22uF 5% 50V
C111	1-136-163-00	s FILM 0.068uF 5% 50V
C113	1-130-339-00	s FILM 0.0056uF 3% 100V
C114	1-136-153-00	s FILM 0.01uF 5% 50V
C119	1-126-101-11	s ELECT 100uF 20% 16V
C123	1-123-875-11	s ELECT 10uF 20% 50V
C124	1-124-477-11	s ELECT 47uF 20% 25V
C125	1-126-101-11	s ELECT 100uF 20% 16V
C126	1-126-151-11	s ELECT, NONPOLAR 4.7uF 20% 16V
C127	1-126-151-11	s ELECT, NONPOLAR 4.7uF 20% 16V
C201	1-131-372-00	s TANTALUM 15uF 10% 16V
C202	1-131-363-00	s TANTALUM 4.7uF 10% 20V
C203	1-136-164-00	s FILM 0.082uF 5% 50V
C204	1-131-372-00	s TANTALUM 15uF 10% 16V
C205	1-131-363-00	s TANTALUM 4.7uF 10% 20V
C206	1-136-153-00	s FILM 0.01uF 5% 50V
C207	1-136-164-00	s FILM 0.082uF 5% 50V
C210	1-124-477-11	s ELECT 47uF 20% 25V
C211	1-124-477-11	s ELECT 47uF 20% 25V
C212	1-124-902-00	s ELECT 0.47uF 20% 50V
C213	1-124-927-11	s ELECT 4.7uF 20% 100V
C214	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C215	1-124-927-11	s ELECT 4.7uF 20% 100V
C216	1-126-101-11	s ELECT 100uF 20% 16V
C218	1-126-176-11	s ELECT 220uF 20% 10V
C301	1-131-404-00	s TANTALUM, 0.22uF 20% 35V
C302	1-124-120-11	s ELECT 220uF 20% 25V
C303	1-131-372-00	s TANTALUM 15uF 10% 16V
C304	1-124-927-11	s ELECT 4.7uF 20% 100V
C305	1-124-120-11	s ELECT 220uF 20% 25V
C306	1-131-372-00	s TANTALUM 15uF 10% 16V
C307	1-126-094-11	s ELECT 4.7uF 20% 35V
C308	1-136-164-00	s FILM 0.082uF 5% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C309	1-136-164-00	s FILM 0.082uF 5% 50V
C310	1-136-168-00	s FILM 0.18uF 5% 50V
C311	1-136-168-00	s FILM 0.18uF 5% 50V
C312	1-136-168-00	s FILM 0.18uF 5% 50V
C313	1-136-168-00	s FILM 0.18uF 5% 50V
C316	1-136-153-00	s FILM 0.01uF 5% 50V
C317	1-136-153-00	s FILM 0.01uF 5% 50V
C318	1-124-589-11	s ELECT 47uF 20% 16V
C319	1-124-589-11	s ELECT 47uF 20% 16V
C320	1-124-589-11	s ELECT 47uF 20% 16V
C321	1-124-589-11	s ELECT 47uF 20% 16V
C322	1-124-589-11	s ELECT 47uF 20% 16V
C323	1-124-589-11	s ELECT 47uF 20% 16V
C324	1-124-589-11	s ELECT 47uF 20% 16V
C325	1-124-589-11	s ELECT 47uF 20% 16V
C326	1-124-589-11	s ELECT 47uF 20% 16V
C327	1-124-589-11	s ELECT 47uF 20% 16V
C328	1-124-589-11	s ELECT 47uF 20% 16V
C329	1-124-589-11	s ELECT 47uF 20% 16V
C330	1-124-589-11	s ELECT 47uF 20% 16V
C331	1-124-589-11	s ELECT 47uF 20% 16V
C332	1-124-589-11	s ELECT 47uF 20% 16V
C333	1-124-589-11	s ELECT 47uF 20% 16V
C334	1-124-589-11	s ELECT 47uF 20% 16V
C335	1-124-589-11	s ELECT 47uF 20% 16V
C336	1-124-589-11	s ELECT 47uF 20% 16V
C337	1-124-589-11	s ELECT 47uF 20% 16V
C338	1-126-157-11	s ELECT 10uF 20% 16V
C339	1-124-234-00	s ELECT 22uF 20% 16V
C340	1-126-157-11	s ELECT 10uF 20% 16V
C341	1-124-234-00	s ELECT 22uF 20% 16V
C342	1-124-234-00	s ELECT 22uF 20% 16V
C343	1-126-157-11	s ELECT 10uF 20% 16V
C344	1-124-234-00	s ELECT 22uF 20% 16V
C345	1-126-157-11	s ELECT 10uF 20% 16V
C346	1-126-094-11	s ELECT 4.7uF 20% 35V
C347	1-123-875-11	s ELECT 10uF 20% 50V
C348	1-126-101-11	s ELECT 100uF 20% 16V
C349	1-123-875-11	s ELECT 10uF 20% 50V
C350	1-126-157-11	s ELECT 10uF 20% 16V
C351	1-123-875-11	s ELECT 10uF 20% 50V
C352	1-136-153-00	s FILM 0.01uF 5% 50V
C353	1-126-176-11	s ELECT 220uF 20% 10V
C400	1-123-356-00	s ELECT 10uF 20% 50V
C404	1-126-233-11	s ELECT 22uF 20% 50V
C405	1-162-286-31	s CERAMIC 220PF 10% 50V
C406	1-124-477-11	s ELECT 47uF 20% 25V
C407	1-124-477-11	s ELECT 47uF 20% 25V
C408	1-126-101-11	s ELECT 100uF 20% 16V
C409	1-126-101-11	s ELECT 100uF 20% 16V
C410	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C412	1-124-927-11	s ELECT 4.7uF 20% 100V
C413	1-124-477-11	s ELECT 47uF 20% 25V
C414	1-123-875-11	s ELECT 10uF 20% 50V
C415	1-123-875-11	s ELECT 10uF 20% 50V
C416	1-123-875-11	s ELECT 10uF 20% 50V
C417	1-124-477-11	s ELECT 47uF 20% 25V
C418	1-124-477-11	s ELECT 47uF 20% 25V
C419	1-162-207-31	s CERAMIC 22PF 5% 50V

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C420	1-124-477-11	s ELECT 47uF 20% 25V
C421	1-161-327-00	s CERAMIC 0.0033uF 30% 50V
C422	1-123-875-11	s ELECT 10uF 20% 50V
C423	1-126-101-11	s ELECT 100uF 20% 16V
C424	1-123-875-11	s ELECT 10uF 20% 50V
C425	1-162-286-31	s CERAMIC 220PF 10% 50V
C426	1-123-875-11	s ELECT 10uF 20% 50V
C427	1-124-455-00	s ELECT 100uF 20% 16V
C428	1-123-875-11	s ELECT 10uF 20% 50V
C430	1-124-455-00	s ELECT 100uF 20% 16V
C431	1-126-157-11	s ELECT 10uF 20% 16V
C432	1-126-157-11	s ELECT 10uF 20% 16V
C433	1-123-875-11	s ELECT 10uF 20% 50V
C436	1-124-455-00	s ELECT 100uF 20% 16V
C437	1-123-875-11	s ELECT 10uF 20% 50V
C438	1-123-875-11	s ELECT 10uF 20% 50V
C439	1-126-233-11	s ELECT 22uF 20% 50V
C440	1-124-472-11	s ELECT 470uF 20% 10V
C441	1-124-927-11	s ELECT 4.7uF 20% 100V
C442	1-123-875-11	s ELECT 10uF 20% 50V
C443	1-123-875-11	s ELECT 10uF 20% 50V
C444	1-124-455-00	s ELECT 100uF 20% 16V
C445	1-124-477-11	s ELECT 47uF 20% 25V
CP1	1-236-010-11	s FILTER, LOW-PASS
CP101	1-236-010-11	s FILTER, LOW-PASS
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D101	8-719-911-19	s DIODE 1SS119
D102	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119
D104	8-719-911-19	s DIODE 1SS119
D105	8-719-911-19	s DIODE 1SS119
D106	8-719-911-19	s DIODE 1SS119
D201	8-729-105-68	s TRANSISTOR 2SC3356-K
D202	8-719-911-19	s DIODE 1SS119
D203	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D304	8-719-911-19	s DIODE 1SS119
D305	8-719-911-19	s DIODE 1SS119
D306	8-719-911-19	s DIODE 1SS119
D307	8-729-105-68	s TRANSISTOR 2SC3356-K
D400	8-719-911-19	s DIODE 1SS119
D401	8-719-101-97	s DIODE 1SS97-1
D402	8-719-101-97	s DIODE 1SS97-1
D403	8-719-911-19	s DIODE 1SS119
D404	8-719-911-19	s DIODE 1SS119
D405	8-719-911-19	s DIODE 1SS119
D406	8-719-911-19	s DIODE 1SS119
D407	8-719-911-19	s DIODE 1SS119
D408	8-719-911-19	s DIODE 1SS119
D409	8-719-911-19	s DIODE 1SS119
D410	8-729-105-68	s TRANSISTOR 2SC3356-K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D411	8-729-105-68	s TRANSISTOR 2SC3356-K
IC1	8-752-018-80	s IC CX20188
IC2	8-759-981-90	s IC RC4558DD
IC3	8-759-208-12	s IC TC4016BPHB
IC102	8-759-981-90	s IC RC4558DD
IC103	8-759-208-12	s IC TC4016BPHB
IC201	8-759-340-13	s IC HD14013BP
IC202	8-759-981-90	s IC RC4558DD
IC203	8-759-240-71	s IC TC4071BP
IC204	8-759-240-11	s IC TC4011BP
IC205	8-759-240-11	s IC TC4011BP
IC302	8-759-132-40	s IC UPC324C
IC303	8-759-969-13	s IC SN16913P
IC304	8-759-969-13	s IC SN16913P
IC305	8-759-969-13	s IC SN16913P
IC306	8-759-969-13	s IC SN16913P
IC310	8-759-981-74	s IC LM2904S
IC311	8-759-981-74	s IC LM2904S
IC401	8-759-981-57	s IC RC2043DD
IC402	8-759-981-64	s IC LM2903DQ
IC403	8-759-922-36	s IC CX20060
IC404	8-759-922-36	s IC CX20060
IC405	8-759-982-02	s IC RC4562DD
IC406	8-759-922-36	s IC CX20060
IC407	8-759-922-36	s IC CX20060
IC408	8-759-982-25	s IC RC78L09A
Q1	8-729-900-65	s TRANSISTOR DTA144ES
Q101	8-729-900-65	s TRANSISTOR DTA144ES
Q201	8-729-900-89	s TRANSISTOR DTC144ES
Q202	8-729-178-54	s TRANSISTOR 2SC2785
Q203	8-729-178-54	s TRANSISTOR 2SC2785
Q204	8-729-178-54	s TRANSISTOR 2SC2785
Q205	8-729-201-05	s TRANSISTOR 2SC2878-B
Q206	8-729-900-65	s TRANSISTOR DTA144ES
Q207	8-729-201-05	s TRANSISTOR 2SC2878-B
Q208	8-729-900-65	s TRANSISTOR DTA144ES
Q301	8-729-900-89	s TRANSISTOR DTC144ES
Q302	8-729-900-89	s TRANSISTOR DTC144ES
Q303	8-729-900-89	s TRANSISTOR DTC144ES
Q304	8-729-900-89	s TRANSISTOR DTC144ES
Q305	8-729-900-89	s TRANSISTOR DTC144ES
Q306	8-729-173-38	s TRANSISTOR 2SA733-K
Q307	8-729-173-38	s TRANSISTOR 2SA733-K
Q308	8-729-173-38	s TRANSISTOR 2SA733-K
Q309	8-729-173-38	s TRANSISTOR 2SA733-K
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q402	8-729-201-05	s TRANSISTOR 2SC2878-B
Q403	8-729-201-05	s TRANSISTOR 2SC2878-B
Q405	8-729-178-54	s TRANSISTOR 2SC2785
Q406	8-729-173-38	s TRANSISTOR 2SA733-K
Q407	8-729-900-89	s TRANSISTOR DTC144ES
Q408	8-729-178-54	s TRANSISTOR 2SC2785
Q409	8-729-900-65	s TRANSISTOR DTA144ES
Q410	8-729-201-05	s TRANSISTOR 2SC2878-B
Q411	8-729-178-54	s TRANSISTOR 2SC2785
Q412	8-729-201-05	s TRANSISTOR 2SC2878-B
Q413	8-729-201-05	s TRANSISTOR 2SC2878-B
Q414	8-729-201-05	s TRANSISTOR 2SC2878-B

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q415	8-729-173-38	s TRANSISTOR 2SA733-K
Q416	8-729-900-89	s TRANSISTOR DTC144ES
Q417	8-729-178-54	s TRANSISTOR 2SC2785
Q418	8-729-173-38	s TRANSISTOR 2SA733-K
Q419	8-729-900-65	s TRANSISTOR DTA144ES
R10	1-247-903-00	s CARBON 1M 5% 1/4W
R17	1-247-889-00	s CARBON 270K 5% 1/4W
R21	1-247-889-00	s CARBON 270K 5% 1/4W
R23	1-247-889-00	s CARBON 270K 5% 1/4W
R24	1-247-889-00	s CARBON 270K 5% 1/4W
R25	1-247-897-11	s CARBON 560K 5% 1/4W
R26	1-247-903-00	s CARBON 1M 5% 1/4W
R27	1-247-903-00	s CARBON 1M 5% 1/4W
R28	1-247-903-00	s CARBON 1M 5% 1/4W
R29	1-247-895-00	s CARBON 470K 5% 1/4W
R30	1-247-883-00	s CARBON 150K 5% 1/4W
R31	1-247-899-11	s CARBON 680K 5% 1/4W
R110	1-247-903-00	s CARBON 1M 5% 1/4W
R117	1-247-889-00	s CARBON 270K 5% 1/4W
R121	1-247-889-00	s CARBON 270K 5% 1/4W
R123	1-247-889-00	s CARBON 270K 5% 1/4W
R124	1-247-889-00	s CARBON 270K 5% 1/4W
R125	1-247-897-11	s CARBON 560K 5% 1/4W
R126	1-247-903-00	s CARBON 1M 5% 1/4W
R127	1-247-903-00	s CARBON 1M 5% 1/4W
R128	1-247-903-00	s CARBON 1M 5% 1/4W
R129	1-247-895-00	s CARBON 470K 5% 1/4W
R130	1-247-883-00	s CARBON 150K 5% 1/4W
R131	1-247-899-11	s CARBON 680K 5% 1/4W
R231	1-247-887-00	s CARBON 220K 5% 1/4W
R245	1-247-899-11	s CARBON 680K 5% 1/4W
R318	1-247-885-00	s CARBON 180K 5% 1/4W
R319	1-247-885-00	s CARBON 180K 5% 1/4W
R322	1-247-895-00	s CARBON 470K 5% 1/4W
R323	1-247-895-00	s CARBON 470K 5% 1/4W
R339	1-247-881-00	s CARBON 120K 5% 1/4W
R343	1-247-887-00	s CARBON 220K 5% 1/4W
R345	1-247-903-00	s CARBON 1M 5% 1/4W
R407	1-247-895-00	s CARBON 470K 5% 1/4W
RV11	1-230-497-11	s RES, ADJ, METAL 22K
RV111	1-230-497-11	s RES, ADJ, METAL 22K
RV211	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV212	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV311	1-230-726-11	s RES, ADJ, CARBON 470K
RV312	1-230-500-11	s RES, ADJ, METAL 220K
RV313	1-230-497-11	s RES, ADJ, METAL 22K
RV314	1-230-497-11	s RES, ADJ, METAL 22K
RV315	1-230-718-11	s RES, ADJ, CARBON 1K
RV316	1-230-718-11	s RES, ADJ, CARBON 1K
RV317	1-230-497-11	s RES, ADJ, METAL 22K
RV401	1-228-996-00	s RES, ADJ, METAL 47K
RV402	1-228-995-00	s RES, ADJ, METAL 22K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

PD-40 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	△A-6725-569-A	o MOUNTED CIRCUIT BOARD, PD-40
1pc	2-382-416-01	o SUPPORT, PC
C1	1-124-927-11	s ELECT 4.7uF 20% 100V
C2	1-124-927-11	s ELECT 4.7uF 20% 100V
C3	1-124-927-11	s ELECT 4.7uF 20% 100V
C4	1-124-927-11	s ELECT 4.7uF 20% 100V
D1	8-719-200-02	s DIODE 10E2
D2	8-719-200-02	s DIODE 10E2
D3	8-719-200-02	s DIODE 10E2
D4	8-719-200-02	s DIODE 10E2
D5	8-719-200-02	s DIODE 10E2
D6	8-719-200-02	s DIODE 10E2
D7	8-719-200-02	s DIODE 10E2
D8	8-719-200-02	s DIODE 10E2
D9	8-719-200-02	s DIODE 10E2
D10	8-719-200-02	s DIODE 10E2
D11	8-719-200-02	s DIODE 10E2
D12	8-719-200-02	s DIODE 10E2
D13	8-719-200-02	s DIODE 10E2
Q1	8-729-811-11	s TRANSISTOR 2SD1111
Q2	8-729-119-78	s TRANSISTOR 2SC2785
Q3	8-729-889-40	s TRANSISTOR 2SD894
Q4	8-729-811-11	s TRANSISTOR 2SD1111
Q5	8-729-119-78	s TRANSISTOR 2SC2785
Q6	8-729-889-40	s TRANSISTOR 2SD894
Q7	8-729-199-82	s TRANSISTOR 2SD998
Q8	8-729-811-11	s TRANSISTOR 2SD1111
Q9	8-729-119-78	s TRANSISTOR 2SC2785
Q10	8-729-199-82	s TRANSISTOR 2SD998
Q11	8-729-811-11	s TRANSISTOR 2SD1111
Q12	8-729-119-78	s TRANSISTOR 2SC2785
Q13	8-729-119-78	s TRANSISTOR 2SC2785
Q14	8-729-199-82	s TRANSISTOR 2SD998
R6	△1-532-685-00	s LINK, IC 0.8A
R12	△1-532-685-00	s LINK, IC 0.8A
R19	△1-532-685-00	s LINK, IC 0.8A
R25	△1-532-685-00	s LINK, IC 0.8A
R30	△1-532-685-00	s LINK, IC 0.8A

PD-41 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	△A-6725-570-A	o MOUNTED CIRCUIT BOARD, PD-41
C1	1-124-927-11	s ELECT 4.7uF 20% 100V
C2	1-124-927-11	s ELECT 4.7uF 20% 100V
C3	1-161-379-00	s CERAMIC 0.01uF 20% 25V
D1	8-719-200-02	s DIODE 10E2
D2	8-719-200-02	s DIODE 10E2
D3	8-719-200-02	s DIODE 10E2
D4	8-719-200-02	s DIODE 10E2
D5	8-719-200-02	s DIODE 10E2
D6	8-719-200-02	s DIODE 10E2
Q1	8-729-811-11	s TRANSISTOR 2SD1111
Q2	8-729-119-78	s TRANSISTOR 2SC2785
Q3	8-729-889-40	s TRANSISTOR 2SD894
Q4	8-729-811-11	s TRANSISTOR 2SD1111
Q5	8-729-119-78	s TRANSISTOR 2SC2785
Q6	8-729-889-40	s TRANSISTOR 2SD894
R6	△1-532-685-00	s LINK, IC 0.8A
R12	△1-532-685-00	s LINK, IC 0.8A

PH-5 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-603-737-00	o PRINTED CIRCUIT BOARD, PH-5
D1	8-719-905-58	s DIODE EQA02-06F1
Q1	8-729-810-22	s TRANSISTOR SPS102-B

PT-9 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-605-018-00	o PRINTED CIRCUIT BOARD, PT-9
Q1	8-729-377-13	s TRANSISTOR 2SA771-Y

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

PTC-30 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-260-11	o PRINTED CIRCUIT BOARD, PTC-30
IC1	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC3	8-719-939-50	s PHOTOINTERRUPTER GP-1L52

PTC-32 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-638-11	o PRINTED CIRCUIT BOARD, PTC-32
1pc	1-564-026-00	o CONTACT, FEMALE, AWG26-30
C1	1-124-234-00	s ELECT 22uF 20% 16V
IC1	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC2	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC3	8-719-940-86	s PHOTOINTERRUPTER GP-1L53
IC4	8-719-939-50	s PHOTOINTERRUPTER GP-1L52
IC5	8-759-133-90	s IC UPC339C

PTC-33 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-258-11	o PRINTED CIRCUIT BOARD, PTC-33
IC1	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "THREAD END DET"
IC2	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "UNTHREAD END DET"

PTC-34 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-259-11	o PRINTED CIRCUIT BOARD, PTC-34
IC1	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "FR UNTHREAD END DET"

PTC-35 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-622-218-11	o PRINTED CIRCUIT BOARD, PTC-35
IC1A	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "TAKE-UP ROTATION DET"
IC1B	8-719-940-86	s PHOTOINTERRUPTER GP-1L53 "SUPPLY ROTATION DET"

RM-39 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-618-873-11	o PRINTED CIRCUIT BOARD, RM-39
C1	1-101-006-00	s CERAMIC 0.047uF 50V
C2	1-101-006-00	s CERAMIC 0.047uF 50V
L1	1-410-623-11	s INDUCTOR 4.7uH
L2	1-410-623-11	s INDUCTOR 4.7uH
M1006	8-835-178-01	s MOTOR, DC FN30-T26N1E "REEL"

RM-66 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-561-655-00	s CONNECTOR, D-SUB 9P, FEMALE
1pc	1-629-473-11	o PRINTED CIRCUIT BOARD, RM-66
1pc	3-668-459-11	o SCREW, CONNECTOR
1pc	3-668-460-00	o SPRING
1pc	3-733-601-01	o BRACKET, 9P

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

RP-40 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	▲A-6727-036-A	o MOUNTED CIRCUIT BOARD, RP-40
2pcs	7-682-903-11	s SCREW +PWH 3X6
C1	1-124-120-11	s ELECT 220uF 20% 25V
C2	1-124-589-11	s ELECT 47uF 20% 16V
C3	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C4	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C7	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C8	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C9	1-124-589-11	s ELECT 47uF 20% 16V
C10	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C11	1-124-589-11	s ELECT 47uF 20% 16V
C14	1-126-160-11	s ELECT 1uF 20% 50V
C15	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C16	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C17	1-124-589-11	s ELECT 47uF 20% 16V
C20	1-126-160-11	s ELECT 1uF 20% 50V
C21	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C22	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C23	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C101	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C102	1-124-589-11	s ELECT 47uF 20% 16V
C105	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C106	1-162-725-11	s CERAMIC 430PF 1% 50V
C107	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C108	1-124-589-11	s ELECT 47uF 20% 16V
C110	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C111	1-162-725-11	s CERAMIC 430PF 1% 50V
C120	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C121	1-161-021-11	s CERAMIC 0.047uF 10% 25V
CN183	1-506-471-11	o CONNECTOR, 6P, MALE
CN186	1-506-471-11	s CONNECTOR, 6P, MALE
CN187	1-506-471-11	s CONNECTOR, 6P, MALE
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-109-60	s DIODE RD2.7ES-B2
D4	8-719-911-19	s DIODE 1SS119
D101	8-719-911-19	s DIODE 1SS119
D102	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119
D104	8-719-911-19	s DIODE 1SS119
D105	8-719-911-19	s DIODE 1SS119
D106	8-719-911-19	s DIODE 1SS119
D107	8-719-911-19	s DIODE 1SS119
D108	8-719-911-19	s DIODE 1SS119
IC1	8-743-731-00	s IC BX-373A
IC2	8-729-801-46	s TRANSISTOR 2SC3064-F
IC3	8-741-126-50	s IC BX-1265
IC4	8-759-240-09	s IC TC4009UBP
IC5	8-729-801-46	s TRANSISTOR 2SC3064-F
IC6	8-741-126-50	s IC BX-1265
L1	1-410-482-31	s INDUCTOR 100uH
L3	1-410-482-31	s INDUCTOR 100uH
L4	1-410-482-31	s INDUCTOR 100uH
L101	1-410-482-31	s INDUCTOR 100uH
PS2	▲1-532-727-11	s LINK, IC 0.25A

(RP-40 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q1	8-729-201-05	s TRANSISTOR 2SC2878-B
Q2	8-729-201-05	s TRANSISTOR 2SC2878-B
Q3	8-729-603-50	s TRANSISTOR 2SC403SP
Q4	8-729-603-50	s TRANSISTOR 2SC403SP
Q5	8-729-603-50	s TRANSISTOR 2SC403SP
Q6	8-729-603-50	s TRANSISTOR 2SC403SP
Q7	8-729-603-50	s TRANSISTOR 2SC403SP
Q8	8-729-201-05	s TRANSISTOR 2SC2878-B
Q101	8-729-603-50	s TRANSISTOR 2SC403SP
Q102	8-729-603-50	s TRANSISTOR 2SC403SP
Q103	8-729-603-50	s TRANSISTOR 2SC403SP
Q104	8-729-177-33	s TRANSISTOR 2SD773-4
Q105	8-729-113-33	s TRANSISTOR 2SB733-4
Q106	8-729-603-50	s TRANSISTOR 2SC403SP
Q107	8-729-603-50	s TRANSISTOR 2SC403SP
Q108	8-729-177-33	s TRANSISTOR 2SD773-4
Q109	8-729-113-33	s TRANSISTOR 2SB733-4
R1	1-249-404-00	s CARBON 82 5% 1/4W
R2	1-249-404-00	s CARBON 82 5% 1/4W
RV1	1-228-990-00	s RES, ADJ, METAL 1K
RV3	1-228-993-00	s RES, ADJ, METAL 4.7K
RV4	1-228-991-00	s RES, ADJ, METAL 2.2K
RV5	1-228-993-00	s RES, ADJ, METAL 4.7K
RV6	1-228-991-00	s RES, ADJ, METAL 2.2K
RV7	1-228-990-00	s RES, ADJ, METAL 1K
RV8	1-228-991-00	s RES, ADJ, METAL 2.2K
RV101	1-228-990-00	s RES, ADJ, METAL 1K
RV102	1-228-990-00	s RES, ADJ, METAL 1K
T1	1-426-017-00	s TRANSFORMER, AF
T2	1-427-472-00	s TRANSFORMER, OUTPUT
T3	1-426-319-11	s TRANSFORMER, PB RF
T4	1-427-472-00	s TRANSFORMER, OUTPUT
T5	1-426-319-11	s TRANSFORMER, PB RF

SE-46 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-618-599-11	o PRINTED CIRCUIT BOARD, SE-46
PC1	1-806-232-21	s DETECTOR MB-1102/SN

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

SV-112 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A A-6727-037-A	o MOUNTED CIRCUIT BOARD, SV-112
2pcs	2-371-561-00	s BUSHING (P), INSULATING
2pcs	3-703-037-00	s INSULATOR, TO-220
2pcs	7-682-648-09	s SCREW +PS 3X8
4pcs	7-682-903-11	s SCREW +PWH 3X6
C3	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C4	1-124-963-11	s ELECT 33uF 20% 16V
C6	1-161-377-00	s CERAMIC 0.0047uF 20% 50V
C7	1-161-374-11	s CERAMIC 0.0015uF 20% 50V
C9	1-124-925-11	s ELECT 2.2uF 20% 100V
C10	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C12	1-161-329-00	s CERAMIC 0.0068uF 30% 25V
C13	1-124-963-11	s ELECT 33uF 20% 16V
C14	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C16	1-124-480-11	s ELECT 470uF 20% 25V
C17	1-161-057-00	s CERAMIC 0.033uF 10% 50V
C18	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C19	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C104	1-162-215-31	s CERAMIC 47PF 5% 50V
C106	1-161-047-00	s CERAMIC 0.0047uF 10% 50V
C107	1-124-477-11	s ELECT 47uF 20% 25V
C108	1-123-875-11	s ELECT 10uF 20% 50V
C109	1-124-910-11	s ELECT 47uF 20% 50V
C110	1-124-910-11	s ELECT 47uF 20% 50V
C111	1-161-042-00	s CERAMIC 0.0018uF 10% 50V
C112	1-161-042-00	s CERAMIC 0.0018uF 10% 50V
C116	1-162-286-31	s CERAMIC 220PF 10% 50V
C120	1-162-288-31	s CERAMIC 330PF 10% 50V
C301	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C302	1-161-040-00	s CERAMIC 0.0012uF 10% 50V
C304	1-126-233-11	s ELECT 22uF 20% 50V
C305	1-126-233-11	s ELECT 22uF 20% 50V
C306	1-162-286-31	s CERAMIC 220PF 10% 50V
C308	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C309	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C312	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C313	1-123-875-11	s ELECT 10uF 20% 50V
C402	1-124-902-00	s ELECT 0.47uF 20% 50V
C404	1-124-902-00	s ELECT 0.47uF 20% 50V
C406	1-124-902-00	s ELECT 0.47uF 20% 50V
C408	1-124-443-00	s ELECT 100uF 20% 10V
C409	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C410	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C411	1-162-207-31	s CERAMIC 22PF 5% 50V
C412	1-162-282-31	s CERAMIC 100PF 10% 50V
C413	1-162-284-31	s CERAMIC 150PF 10% 50V
C414	1-124-477-11	s ELECT 47uF 20% 25V
C415	1-124-963-11	s ELECT 33uF 20% 16V
C418	1-162-282-31	s CERAMIC 100PF 10% 50V
C422	1-124-464-11	s ELECT 0.22uF 20% 50V
C423	1-162-288-31	s CERAMIC 330PF 10% 50V
C424	1-123-875-11	s ELECT 10uF 20% 50V
C425	1-124-925-11	s ELECT 2.2uF 20% 100V
C426	1-124-925-11	s ELECT 2.2uF 20% 100V
C429	1-124-471-00	s ELECT 1000uF 20% 6.3V
C430	1-124-463-00	s ELECT 0.1uF 20% 50V
C432	1-124-120-11	s ELECT 220uF 20% 25V
C433	1-124-499-11	s ELECT, NONPOLAR 1uF 20% 50V
C434	1-124-120-11	s ELECT 220uF 20% 25V

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C501	1-124-477-11	s ELECT 47uF 20% 25V
C503	1-123-875-11	s ELECT 10uF 20% 50V
C504	1-124-902-00	s ELECT 0.47uF 20% 50V
C505	1-124-120-11	s ELECT 220uF 20% 25V
C507	1-162-290-31	s CERAMIC 470PF 10% 50V
C701	1-124-477-11	s ELECT 47uF 20% 25V
C702	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C703	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C704	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C705	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C706	1-124-119-00	s ELECT 330uF 20% 16V
C707	1-124-477-11	s ELECT 47uF 20% 25V
C709	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C711	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C712	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C714	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C716	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C717	1-124-477-11	s ELECT 47uF 20% 25V
C718	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C853	1-124-252-00	s ELECT 0.33uF 20% 50V
C900	1-124-463-00	s ELECT 0.1uF 20% 50V
C901	1-162-290-31	s CERAMIC 470PF 10% 50V
C904	1-123-875-11	s ELECT 10uF 20% 50V
C906	1-161-377-00	s CERAMIC 0.0047uF 20% 50V
C911	1-123-875-11	s ELECT 10uF 20% 50V
C912	1-124-477-11	s ELECT 47uF 20% 25V
C913	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C914	1-126-157-11	s ELECT 10uF 20% 16V
C915	1-162-210-31	s CERAMIC 30PF 5% 50V
C916	1-162-210-31	s CERAMIC 30PF 5% 50V
C917	1-162-290-31	s CERAMIC 470PF 10% 50V
C918	1-124-910-11	s ELECT 47uF 20% 50V
C919	1-162-286-31	s CERAMIC 220PF 10% 50V
C920	1-162-286-31	s CERAMIC 220PF 10% 50V
C921	1-162-282-31	s CERAMIC 100PF 10% 50V
C922	1-162-282-31	s CERAMIC 100PF 10% 50V
CN410	1-506-471-11	s CONNECTOR, 6P, MALE
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D7	8-719-911-55	s DIODE U05G
D101	8-719-911-19	s DIODE 1SS119
D103	8-719-911-19	s DIODE 1SS119
D104	8-719-911-19	s DIODE 1SS119
D105	8-719-911-19	s DIODE 1SS119
D106	8-719-911-19	s DIODE 1SS119
D107	8-719-911-19	s DIODE 1SS119
D108	8-719-911-19	s DIODE 1SS119
D109	8-719-911-19	s DIODE 1SS119
D112	8-719-911-19	s DIODE 1SS119
D113	8-719-911-19	s DIODE 1SS119
D202	8-719-911-19	s DIODE 1SS119
D204	8-719-911-19	s DIODE 1SS119
D205	8-719-911-19	s DIODE 1SS119
D206	8-719-911-19	s DIODE 1SS119
D207	8-719-911-19	s DIODE 1SS119

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D208	8-719-911-19	s DIODE 1SS119
D210	8-719-109-63	s DIODE RD3.0ESB2
D211	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D402	8-719-911-19	s DIODE 1SS119
D403	8-719-911-19	s DIODE 1SS119
D404	8-719-911-19	s DIODE 1SS119
D406	8-719-911-19	s DIODE 1SS119
D407	8-719-911-19	s DIODE 1SS119
D408	8-719-911-19	s DIODE 1SS119
D409	8-719-911-19	s DIODE 1SS119
D410	8-719-911-19	s DIODE 1SS119
D411	8-719-911-19	s DIODE 1SS119
D501	8-719-911-19	s DIODE 1SS119
D600	8-719-911-19	s DIODE 1SS119
D850	8-719-911-19	s DIODE 1SS119
D851	8-719-911-19	s DIODE 1SS119
D852	8-719-911-19	s DIODE 1SS119
D853	8-719-911-19	s DIODE 1SS119
D866	8-719-911-19	s DIODE 1SS119
D870	8-719-911-19	s DIODE 1SS119
D902	8-719-911-19	s DIODE 1SS119
D903	8-719-911-19	s DIODE 1SS119
D904	8-719-911-19	s DIODE 1SS119
D905	8-719-911-19	s DIODE 1SS119
D906	8-719-911-19	s DIODE 1SS119
D907	8-719-911-19	s DIODE 1SS119
D910	8-719-911-19	s DIODE 1SS119
D912	8-719-911-19	s DIODE 1SS119
D913	8-719-911-19	s DIODE 1SS119
D914	8-719-911-19	s DIODE 1SS119
D915	8-719-911-19	s DIODE 1SS119
D916	8-719-911-19	s DIODE 1SS119
D917	8-719-911-19	s DIODE 1SS119
D919	8-719-911-19	s DIODE 1SS119
D920	8-719-911-19	s DIODE 1SS119
D921	8-719-911-19	s DIODE 1SS119
D922	8-719-911-19	s DIODE 1SS119
D923	8-719-911-19	s DIODE 1SS119
D990	8-719-101-97	s DIODE 1SS97-1
IC1	8-759-132-40	s IC UPC324C
IC2	8-759-981-95	s IC RC4558S
IC3	8-759-981-90	s IC RC4558DD
IC4	8-759-240-81	s IC TC4081BP
IC5	8-759-208-10	s IC TC4053BPHB
IC8	8-759-132-40	s IC UPC324C
IC9	8-759-132-40	s IC UPC324C
IC10	8-759-133-90	s IC UPC339C
IC12	8-759-135-80	s IC UPC358C
IC13	8-759-208-10	s IC TC4053BPHB
IC15	8-759-200-01	s IC TC4001UBP
IC16	8-759-208-10	s IC TC4053BPHB
IC17	8-751-941-03	s IC CX-194B
IC18	8-759-984-94	s IC MB88P505H-101PG5110
IC19	8-759-207-73	s IC TC4030BPHB
IC20	8-759-208-10	s IC TC4053BPHB

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Ref. No. or Q'ty	Part No.	SP Description
IC21	8-743-915-10	s IC BX3915A
IC22	8-759-135-80	s IC UPC358C
IC850	8-759-345-38	s IC HD14538BP
IC851	8-759-345-38	s IC HD14538BP
IC852	8-759-240-15	s IC TC4015BP
IC853	8-759-240-69	s IC TC4069UBP
IC854	8-759-345-38	s IC HD14538BP
IC902	8-759-240-69	s IC TC4069UBP
IC903	1-464-259-12	s CORRECTION UNIT, SWITCHING
IC906	8-759-240-69	s IC TC4069UBP
IC907	8-759-984-95	s IC MB88201H-652M
IC908	8-759-910-43	s IC CX23028
PS1	A1-532-685-00	s LINK, IC 0.8A
Q1	8-729-119-78	s TRANSISTOR 2SC2785
Q2	8-729-173-38	s TRANSISTOR 2SA733-K
Q3	8-729-376-84	s TRANSISTOR 2SA768-G
Q4	8-729-804-92	s TRANSISTOR 2SD1682-T
Q5	8-729-177-42	s TRANSISTOR 2SD774-3
Q101	8-729-900-83	s TRANSISTOR DTC124XS
Q102	8-729-119-78	s TRANSISTOR 2SC2785
Q103	8-729-900-83	s TRANSISTOR DTC124XS
Q104	8-729-173-38	s TRANSISTOR 2SA733-K
Q106	8-729-119-78	s TRANSISTOR 2SC2785
Q107	8-729-105-73	s TRANSISTOR 2SK523-L2
Q108	8-729-900-83	s TRANSISTOR DTC124XS
Q109	8-729-900-89	s TRANSISTOR DTC144ES
Q110	8-729-119-78	s TRANSISTOR 2SC2785
Q111	8-729-376-84	s TRANSISTOR 2SA768-G
Q112	8-729-173-38	s TRANSISTOR 2SA733-K
Q113	8-729-804-92	s TRANSISTOR 2SD1682-T
Q114	8-729-900-67	s TRANSISTOR DTA124XS
Q201	8-729-900-83	s TRANSISTOR DTC124XS
Q202	8-729-900-83	s TRANSISTOR DTC124XS
Q203	8-729-900-83	s TRANSISTOR DTC124XS
Q204	8-729-900-83	s TRANSISTOR DTC124XS
Q206	8-729-900-83	s TRANSISTOR DTC124XS
Q301	8-729-119-78	s TRANSISTOR 2SC2785
Q302	8-729-119-78	s TRANSISTOR 2SC2785
Q303	8-729-119-78	s TRANSISTOR 2SC2785
Q304	8-729-119-78	s TRANSISTOR 2SC2785
Q305	8-729-900-83	s TRANSISTOR DTC124XS
Q401	8-729-119-78	s TRANSISTOR 2SC2785
Q403	8-729-119-78	s TRANSISTOR 2SC2785
Q404	8-729-119-78	s TRANSISTOR 2SC2785
Q408	8-729-603-50	s TRANSISTOR 2SC403SP
Q410	8-729-900-67	s TRANSISTOR DTA124XS
Q411	8-729-119-78	s TRANSISTOR 2SC2785
Q412	8-729-119-78	s TRANSISTOR 2SC2785
Q850	8-729-900-89	s TRANSISTOR DTC144ES
Q851	8-729-900-36	s TRANSISTOR DTC124ES
Q852	8-729-900-89	s TRANSISTOR DTC144ES
Q854	8-729-900-36	s TRANSISTOR DTC124ES
Q855	8-729-119-78	s TRANSISTOR 2SC2785
Q856	8-729-900-36	s TRANSISTOR DTC124ES
Q857	8-729-900-89	s TRANSISTOR DTC144ES
Q900	8-729-119-78	s TRANSISTOR 2SC2785
Q901	8-729-119-78	s TRANSISTOR 2SC2785
Q902	8-729-119-78	s TRANSISTOR 2SC2785

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q903	8-729-119-78	s TRANSISTOR 2SC2785
Q905	8-729-603-50	s TRANSISTOR 2SC403SP
Q906	8-729-900-89	s TRANSISTOR DTC144ES
Q907	8-729-900-89	s TRANSISTOR DTC144ES
Q908	8-729-119-78	s TRANSISTOR 2SC2785
Q909	8-729-900-89	s TRANSISTOR DTC144ES
Q911	8-729-119-78	s TRANSISTOR 2SC2785
Q912	8-729-201-05	s TRANSISTOR 2SC2878-B
Q913	8-729-600-24	s TRANSISTOR 2SC403SP-51
Q914	8-729-173-38	s TRANSISTOR 2SA733-K
Q915	8-729-900-89	s TRANSISTOR DTC144ES
R12	1-247-895-00	s CARBON 470K 5% 1/4W
R13	1-247-881-00	s CARBON 120K 5% 1/4W
R14	1-247-903-00	s CARBON 1M 5% 1/4W
R15	1-247-903-00	s CARBON 1M 5% 1/4W
R17	1-247-895-00	s CARBON 470K 5% 1/4W
R35	1-247-891-00	s CARBON 330K 5% 1/4W
R42	△1-207-621-00	s WIREWOUND 1.5 10% 3W
R111	1-247-893-11	s CARBON 390K 5% 1/4W
R125	1-247-887-00	s CARBON 220K 5% 1/4W
R147	1-247-895-00	s CARBON 470K 5% 1/4W
R150	1-247-903-00	s CARBON 1M 5% 1/4W
R151	1-247-891-00	s CARBON 330K 5% 1/4W
R162	1-247-895-00	s CARBON 470K 5% 1/4W
R172	1-247-891-00	s CARBON 330K 5% 1/4W
R175	1-247-903-00	s CARBON 1M 5% 1/4W
R176	1-247-887-00	s CARBON 220K 5% 1/4W
R178	1-247-895-00	s CARBON 470K 5% 1/4W
R223	1-247-897-11	s CARBON 560K 5% 1/4W
R224	1-247-897-11	s CARBON 560K 5% 1/4W
R260	1-247-895-00	s CARBON 470K 5% 1/4W
R305	1-247-903-00	s CARBON 1M 5% 1/4W
R306	1-247-895-00	s CARBON 470K 5% 1/4W
R310	1-247-903-00	s CARBON 1M 5% 1/4W
R311	1-247-895-00	s CARBON 470K 5% 1/4W
R315	1-247-903-00	s CARBON 1M 5% 1/4W
R326	1-247-883-00	s CARBON 150K 5% 1/4W
R328	1-247-903-00	s CARBON 1M 5% 1/4W
R414	1-247-744-11	s CARBON 270 5% 1/2W
R426	1-247-895-00	s CARBON 470K 5% 1/4W
R432	1-247-903-00	s CARBON 1M 5% 1/4W
R433	1-247-889-00	s CARBON 270K 5% 1/4W
R461	△1-207-636-11	s WIREWOUND 100 10% 3W
R759	1-247-883-00	s CARBON 150K 5% 1/4W
R855	1-247-892-11	s CARBON 360K 5% 1/4W
R856	1-247-860-11	s CARBON 16K 5% 1/4W
R857	1-247-903-00	s CARBON 1M 5% 1/4W
R858	1-247-903-00	s CARBON 1M 5% 1/4W
R866	1-247-893-11	s CARBON 390K 5% 1/4W
R867	1-247-893-11	s CARBON 390K 5% 1/4W
R873	1-247-903-00	s CARBON 1M 5% 1/4W
R876	1-247-903-00	s CARBON 1M 5% 1/4W
R892	1-247-848-11	s CARBON 5.1K 5% 1/4W
R917	1-247-901-11	s CARBON 820K 5% 1/4
R928	1-247-899-11	s CARBON 680K 5% 1/4W
R929	1-247-899-11	s CARBON 680K 5% 1/4W
R961	1-247-903-00	s CARBON 1M 5% 1/4W

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
RV1	1-228-994-00	s RES, ADJ, METAL 10K
RV2	1-228-990-00	s RES, ADJ, METAL 1K
RV100	1-228-993-00	s RES, ADJ, METAL 4.7K
RV101	1-228-994-00	s RES, ADJ, METAL 10K
RV102	1-228-994-00	s RES, ADJ, METAL 10K
RV106	1-228-993-00	s RES, ADJ, METAL 4.7K
RV107	1-228-995-00	s RES, ADJ, METAL 22K
RV201	1-228-990-00	s RES, ADJ, METAL 1K
RV402	1-228-996-00	s RES, ADJ, METAL 47K
RV404	1-228-996-00	s RES, ADJ, METAL 47K
RV405	1-228-996-00	s RES, ADJ, METAL 47K
RV406	1-228-997-00	s RES, ADJ, METAL 100K
RV850	1-228-999-00	s RES, ADJ, METAL 470K
RV851	1-228-996-00	s RES, ADJ, METAL 47K
RV853	1-228-999-00	s RES, ADJ, METAL 470K
RV854	1-228-999-00	s RES, ADJ, METAL 470K
RV900	1-228-996-00	s RES, ADJ, METAL 47K
X1	1-567-859-11	s CRYSTAL, 3.579545MHZ
X2	1-567-962-11	s CRYSTAL 8.000000MHZ
X3	1-567-132-00	s RESONATOR, CERAMIC 8.00MHZ

SW-315 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6729-839-A	o MOUNTED CIECUIT BOARD, SW-315
CN917	1-506-471-11	o CONNECTOR, 6P, MALE
D1	8-719-802-24	s DIODE TLUY154
D2	8-719-802-24	s DIODE TLUY154
D3	8-719-802-11	s LED TLUG154, GRN
D4	8-719-802-11	s LED TLUG154, GRN
D5	8-719-802-24	s DIODE TLUY154
D7	8-719-110-03	s DIODE RD7.5ES-B2
Q1	8-729-119-78	s TRANSISTOR 2SC2785
Q2	8-729-119-78	s TRANSISTOR 2SC2785
Q3	8-729-119-76	s TRANSISTOR 2SA1175
S1	1-516-963-00	s SWITCH, LEVER SLIDE
S2	1-571-116-11	s SWITCH, LEVER SLIDE
S3	1-516-995-00	s SWITCH, LEVER SLIDE
S4	1-571-116-11	s SWITCH, LEVER SLIDE
S6	1-571-116-11	s SWITCH, LEVER SLIDE

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

SY-141 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	▲ A-6727-038-A	o MOUNTED CIRCUIT BOARD, SY-141
1pc	2-371-561-00	s BUSHING (P), INSULATING
1pc	3-703-037-00	s INSULATOR, TO-220
1pc	7-682-650-09	s SCREW +PS 3X12
1pc	7-684-023-04	s N 3, TYPE 2
6pcs	7-682-903-11	s SCREW +PWH 3X6
C4	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C5	1-124-589-11	s ELECT 47uF 20% 16V
C6	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C7	1-131-351-00	s TANTALUM 4.7uF 10% 35V
C8	1-126-160-11	s ELECT 1uF 20% 50V
C9	1-124-248-00	s ELECT 22uF 20% 35V
C10	1-124-589-11	s ELECT 47uF 20% 16V
C11	1-126-163-11	s ELECT 4.7uF 20% 50V
C14	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C15	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C16	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C19	1-124-589-11	s ELECT 47uF 20% 16V
C20	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C21	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C31	1-102-973-00	s CERAMIC 100PF 5% 50V
C48	1-162-207-31	s CERAMIC 22PF 5% 50V
C49	1-162-207-31	s CERAMIC 22PF 5% 50V
C101	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C102	1-162-294-31	s CERAMIC 0.001uF 10% 50V
C302	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C304	1-162-210-31	s CERAMIC 30PF 5% 50V
C305	1-162-210-31	s CERAMIC 30PF 5% 50V
C306	1-161-055-00	s CERAMIC 0.022uF 10% 50V
C307	1-124-465-00	s ELECT 0.47uF 20% 50V
C310	1-124-589-11	s ELECT 47uF 20% 16V
C311	1-126-160-11	s ELECT 1uF 20% 50V
C312	1-124-589-11	s ELECT 47uF 20% 16V
C313	1-126-101-11	s ELECT 100uF 20% 16V
C314	1-162-286-31	s CERAMIC 220PF 10% 50V
C315	1-161-020-11	s CERAMIC 0.039uF 10% 25V
C317	1-126-160-11	s ELECT 1uF 20% 50V
C318	1-131-358-00	s TANTALUM 6.8uF 10% 25V
C327	1-126-160-11	s ELECT 1uF 20% 50V
C328	1-124-261-00	s ELECT 10uF 20% 50V
C329	1-124-589-11	s ELECT 47uF 20% 16V
C330	1-126-160-11	s ELECT 1uF 20% 50V
C335	1-162-215-31	s CERAMIC 47PF 5% 50V
C407	1-161-379-00	s CERAMIC 0.01uF 20% 25V
C410	1-162-282-31	s CERAMIC 100PF 10% 50V
C411	1-102-824-00	s CERAMIC 470PF 5% 50V
C501	1-126-101-11	s ELECT 100uF 20% 16V
C502	1-161-055-00	s CERAMIC 0.022uF 10% 50V
C503	1-126-101-11	s ELECT 100uF 20% 16V
C504	1-126-101-11	s ELECT 100uF 20% 16V
C505	1-126-101-11	s ELECT 100uF 20% 16V
C506	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C507	1-161-041-00	s CERAMIC 0.0015uF 10% 50V
C508	1-161-051-00	s CERAMIC 0.01uF 10% 50V
C509	1-124-248-00	s ELECT 22uF 20% 35V
C510	1-124-248-00	s ELECT 22uF 20% 35V
C511	1-124-261-00	s ELECT 10uF 20% 50V
C512	1-162-286-31	s CERAMIC 220PF 10% 50V

(SY-141 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C513	1-162-282-31	s CERAMIC 100PF 10% 50V
C514	1-162-282-31	s CERAMIC 100PF 10% 50V
C516	1-161-379-00	s CERAMIC 0.01uF 20% 25V
CN517	1-506-471-11	o CONNECTOR, 6P, MALE
CN520	1-506-471-11	s CONNECTOR, 6P, MALE
CNI2	1-526-659-00	s SOCKET, IC 28P
CV401	1-141-337-11	s CAP, TRIMMER 20PF
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-911-19	s DIODE 1SS119
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-911-19	s DIODE 1SS119
D301	8-719-911-19	s DIODE 1SS119
D302	8-719-911-19	s DIODE 1SS119
D303	8-719-911-19	s DIODE 1SS119
D304	8-719-911-19	s DIODE 1SS119
D305	8-719-911-19	s DIODE 1SS119
D306	8-719-911-19	s DIODE 1SS119
D307	8-719-911-19	s DIODE 1SS119
D308	8-719-911-19	s DIODE 1SS119
D309	8-719-911-19	s DIODE 1SS119
D310	8-719-911-19	s DIODE 1SS119
D311	8-719-911-19	s DIODE 1SS119
D312	8-719-911-19	s DIODE 1SS119
D313	8-719-911-19	s DIODE 1SS119
D314	8-719-911-19	s DIODE 1SS119
D315	8-719-911-19	s DIODE 1SS119
D316	8-719-911-19	s DIODE 1SS119
D317	8-719-911-19	s DIODE 1SS119
D320	8-719-911-19	s DIODE 1SS119
D321	8-719-911-19	s DIODE 1SS119
D501	8-719-911-19	s DIODE 1SS119
D502	8-719-911-19	s DIODE 1SS119
D503	8-719-911-55	s DIODE U05G
D510	8-719-911-19	s DIODE 1SS119
F600	▲ 1-532-769-21	s FUSE 0.2A 125V
IC1	8-759-208-85	s IC TMP284C011AF
IC2	--PENDING---	s IC MBM27C256A-25CZ
IC3	8-752-328-10	s IC CXK5864BP-10L
IC4	8-752-323-26	s IC CXK1009P
IC5	8-759-916-84	s IC LH0084A
IC6	8-759-938-68	s IC CXD1095Q
IC8	8-759-345-38	s IC HD14538BP
IC9	8-759-202-74	s IC TC74HC04P
IC10	8-759-917-46	s IC 74F11PC
IC11	8-759-004-64	s IC MC74HC126N
IC12	8-759-008-57	s IC MC34051P
IC13	8-759-202-21	s IC TC74HC32P
IC14	8-759-202-89	s IC TC74HC139P
IC17	8-759-904-83	s IC 74F32PC
IC18	8-759-916-20	s IC SN74HC14N
IC101	8-759-145-58	s IC UPC4558C

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SY-141 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC102	8-759-145-58	s IC UPC4558C
IC103	8-759-240-53	s IC TC4053BP
IC104	8-759-240-69	s IC TC4069UBP
IC105	8-759-340-13	s IC HD14013BP
IC301	8-759-240-69	s IC TC4069UBP
IC302	8-759-202-14	s IC TC74HC08P
IC303	8-759-345-38	s IC HD14538BP
IC304	8-759-135-80	s IC UPC358C
IC305	8-759-600-24	s IC M54543L
IC306	8-759-600-24	s IC M54543L
IC307	8-759-984-90	s IC MB88P551H-201PFG5090
IC311	8-759-240-69	s IC TC4069UBP
IC315	8-759-145-58	s IC UPC4558C
IC316	8-759-981-64	s IC LM2903DQ
IC318	8-759-240-69	s IC TC4069UBP
IC401	8-759-202-74	s IC TC74HC04P
IC403	8-759-345-38	s IC HD14538BP
IC404	8-759-916-29	s IC SN74HC74N
IC405	8-759-908-23	s IC MB88303
PS503	▲1-532-679-00	s LINK, IC 0.6A
PS504	▲1-532-685-00	s LINK, IC 0.8A
PS601	▲1-532-675-00	s LINK, IC 1.5A
Q2	8-729-900-65	s TRANSISTOR DTA144ES
Q3	8-729-900-89	s TRANSISTOR DTC144ES
Q4	8-729-900-89	s TRANSISTOR DTC144ES
Q5	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s TRANSISTOR 2SC1815-Y
Q301	8-729-177-42	s TRANSISTOR 2SD774-3
Q302	8-729-119-78	s TRANSISTOR 2SC2785
Q303	8-729-889-40	s TRANSISTOR 2SD894
Q304	8-729-119-78	s TRANSISTOR 2SC2785
Q305	8-729-119-78	s TRANSISTOR 2SC2785
Q306	8-729-119-78	s TRANSISTOR 2SC2785
Q307	8-729-119-78	s TRANSISTOR 2SC2785
Q308	8-729-119-78	s TRANSISTOR 2SC2785
Q309	8-729-900-89	s TRANSISTOR DTC144ES
Q310	8-729-119-76	s TRANSISTOR 2SA1175
Q311	8-729-900-89	s TRANSISTOR DTC144ES
Q312	8-729-119-76	s TRANSISTOR 2SA1175
Q313	8-729-900-89	s TRANSISTOR DTC144ES
Q314	8-729-900-89	s TRANSISTOR DTC144ES
Q315	8-729-119-78	s TRANSISTOR 2SC2785
Q316	8-729-119-78	s TRANSISTOR 2SC2785
Q317	8-729-900-89	s TRANSISTOR DTC144ES
Q318	8-729-900-89	s TRANSISTOR DTC144ES
Q319	8-729-900-89	s TRANSISTOR DTC144ES
Q336	8-729-900-89	s TRANSISTOR DTC144ES
Q337	8-729-900-89	s TRANSISTOR DTC144ES
Q341	8-729-811-11	s TRANSISTOR 2SD1111
Q342	8-729-119-78	s TRANSISTOR 2SC2785
Q401	8-729-900-89	s TRANSISTOR DTC144ES
Q501	8-729-382-64	s TRANSISTOR 2SC1826-G
R8	1-247-881-00	s CARBON 120K 5% 1/4W
R11	1-247-903-00	s CARBON 1M 5% 1/4W
R311	▲1-207-674-00	s WIREWOUND 0.68 10% 4W
R320	1-247-883-00	s CARBON 150K 5% 1/4W
R321	1-247-882-11	s CARBON 130K 5% 1/4W
R325	1-247-891-00	s CARBON 330K 5% 1/4W

(SY-141 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R327	1-247-887-00	s CARBON 220K 5% 1/4W
R332	1-247-891-00	s CARBON 330K 5% 1/4W
R344	1-247-887-00	s CARBON 220K 5% 1/4W
R347	1-247-887-00	s CARBON 220K 5% 1/4W
R359	1-247-881-00	s CARBON 120K 5% 1/4W
R360	1-247-881-00	s CARBON 120K 5% 1/4W
R509	1-247-903-00	s CARBON 1M 5% 1/4W
R510	1-247-895-00	s CARBON 470K 5% 1/4W
R515	1-247-903-00	s CARBON 1M 5% 1/4W
R516	1-247-895-00	s CARBON 470K 5% 1/4W
R526	1-247-903-00	s CARBON 1M 5% 1/4W
RB3	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB6	1-235-109-00	s RESISTOR BLOCK 22Kx8
RB7	1-235-109-00	s RESISTOR BLOCK 22Kx8
RB10	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB11	1-231-410-00	s RESISTOR BLOCK 10Kx8
RV1	1-230-497-11	s RES, ADJ, METAL 22K
RV2	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV3	1-230-720-11	s RES, ADJ, CARBON 4.7K
RV4	1-230-497-11	s RES, ADJ, METAL 22K
X1	1-567-870-11	s RESONATOR, CERAMIC 614KHz
X302	1-567-132-00	s RESONATOR, CERAMIC 8.00MHz

TG-22 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-618-597-11	o PRINTED CIRCUIT BOARD, TG-22
D1	8-719-905-56	s LED EBR5504S, RED

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

UR-01

Ref. No.

or Q'ty Part No. SP Description

△1-413-069-00 o REGULATOR, SWITCHING UR-01
This board is composed of PW-67 and PW-68 boards.
1-604-137-00 o PRINTED CIRCUIT BOARD, PW-67

C101	1-130-398-00	s	FILM 0.0012uF 10% 600V
C102	△1-130-610-00	s	FILM 0.01uF 2% 400V
C103	△1-161-746-00	s	CERAMIC 0.001uF 10% 125V
C104	△1-161-746-00	s	CERAMIC 0.001uF 10% 125V
C106	1-106-347-00	s	FILM 0.0015uF 5% 200V
C107	1-130-579-00	s	FILM 0.01uF 10% 630V
C108	1-125-240-00	s	ELECT 470 20% 200V
C109	1-125-240-00	s	ELECT 470 20% 200V
C110	1-123-659-00	s	ELECT 4.7uF 20% 250V
C111	1-123-659-00	s	ELECT 4.7uF 20% 250V
C112	1-126-103-11	s	ELECT 470uF 20% 16V
C113	1-123-381-00	s	ELECT 2.2uF 20% 100V
C201	1-106-347-00	s	FILM 0.0015uF 5% 200V
C202	1-108-680-11	s	FILM 0.001uF 10% 200V
C203	1-108-680-11	s	FILM 0.001uF 10% 200V
C207	1-106-351-00	s	FILM 0.0022uF 5% 200V
C208	1-123-663-00	s	ELECT 220uF 20% 6.3V
C209	1-123-326-00	s	ELECT 3300uF 20% 16V
C210	1-123-326-00	s	ELECT 3300uF 20% 16V
C211	1-123-326-00	s	ELECT 3300uF 20% 16V
C113	1-123-381-00	s	ELECT 2.2uF 20% 100V
CN101	1-560-437-00	s	CONNECTOR, VASE 4P, MALE "AC IN"
CN201	1-560-438-00	s	CONNECTOR, VASE 5P, MALE "OUT"
CN201	1-560-036-00	s	JACK, PIN 6P, MALE "CN TO CN"
D101	8-719-108-08	s	DIODE AC03FGMAY
D102	8-719-911-55	s	DIODE U05G
D103	8-719-911-55	s	DIODE U05G
D104	8-719-900-95	s	DIODE V09G
D105	8-719-110-08	s	DIODE RD8.2ESB2
D106	8-719-109-93	s	DIODE RD6.2ESB2
D107	8-719-815-85	s	DIODE 1S1585
D108	8-719-815-85	s	DIODE 1S1585
D201	8-719-908-00	s	DIODE ESAC33-02CS
D202	8-719-908-00	s	DIODE ESAC33-02CS
D203	8-719-908-00	s	DIODE ESAC33-02CS
D204	8-719-200-02	s	DIODE 10E2
D205	8-719-110-41	s	DIODE RD15ES-B2
D206	8-719-923-48	s	DIODE 1S2348H
F101	△1-532-603-21	s	FUSE 2.5A 250V
L101	△1-459-215-00	s	COIL
L102	△1-459-215-00	s	COIL
L201	1-421-398-12	s	COIL, CHOKE
L202	1-421-431-00	s	COIL, CHOKE
L203	1-421-370-00	s	COIL, CHOKE
Q101	8-729-962-52	s	TRANSISTOR 2SC2625-B
Q102	8-729-962-52	s	TRANSISTOR 2SC2625-B
Q103	8-729-225-34	s	TRANSISTOR 2SC2534
Q104	8-729-177-43	s	TRANSISTOR 2SD774
Q201	8-729-331-53	s	TRANSISTOR 2SC2315
R101	△1-205-622-00	s	WIREWOUND 33 5% 5W
R102	△1-205-711-11	s	WIREWOUND 15 5% 5W
R103	1-244-933-00	s	CARBON 330K 5% 1/2W
R104	1-244-933-00	s	CARBON 330K 5% 1/2W
R105	1-202-727-00	s	COMP 4.7M 10% 1/2W

(UR-01)

Ref. No.

or Q'ty Part No. SP Description

R106	1-247-704-11	s	CARBON 220 5% 1/4W
R107	△1-247-090-00	s	CARBON 20 5% 1/4W
R108	△1-247-090-00	s	CARBON 20 5% 1/4W
R109	△1-247-692-11	s	CARBON 22 5% 1/4W
R109	△1-247-691-11	s	CARBON 18 5% 1/4W
R110	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R111	1-246-530-00	s	CARBON 240K 5% 1/4W
R113	△1-247-123-00	s	CARBON 470 5% 1/4W
R114	1-249-468-11	s	CARBON 82K 5% 1/4W
R115	△1-247-123-00	s	CARBON 470 5% 1/4W
R201	△1-205-622-00	s	WIREWOUND 33 5% 5W
R202	△1-205-627-00	s	WIREWOUND 0.01 5% 5W
R203	1-247-733-11	s	CARBON 33 5% 1/2W
R204	1-247-712-11	s	CARBON 820 5% 1/4W
R205	△1-247-090-00	s	CARBON 20 5% 1/4W
T101	△1-446-911-00	s	TRANSFORMER, CONVERTER (MAIN)
T102	△1-421-430-00	s	FILTER, LINE
T103	△1-437-085-00	s	TRANSFORMER, DRIVE
T104	△1-446-912-00	s	TRANSFORMER, CONVERTER (SUB)
T201	1-421-432-00	s	COIL, CHOKE
	1-604-138-00	o	PRINTED CIRCUIT BOARD, PW-68
C301	1-130-591-11	s	FILM 0.0033uF 2% 100V
C301	1-130-652-00	s	FILM 0.0036uF 2% 100V
C302	1-106-347-00	s	FILM 0.0015uF 5% 200V
C303	1-123-357-00	s	ELECT 22uF 20% 50V
C304	1-123-357-00	s	ELECT 22uF 20% 50V
C305	1-130-349-00	s	FILM 0.1uF 10% 100V
D301	8-719-200-02	s	DIODE 10E2
D302	8-719-110-41	s	DIODE RD15ES-B2
IC301	8-759-904-94	s	IC TL494CN
Q301	8-729-173-36	s	TRANSISTOR 2SA733-Q
R301	1-247-719-11	s	CARBON 3.3K 5% 1/4W
R302	△1-247-104-00	s	CARBON 75 5% 1/4W
R303	1-247-700-11	s	CARBON 100 5% 1/4W
R304	1-247-720-11	s	CARBON 3.9K 5% 1/4W
	1-247-146-00	s	CARBON 4.3K 5% 1/4W
	1-247-721-11	s	CARBON 4.7K 5% 1/4W
	1-247-148-00	s	CARBON 5.1K 5% 1/4W
	1-247-722-11	s	CARBON 5.6K 5% 1/4W
R305	1-249-460-11	s	CARBON 15K 5% 1/4W
R306	1-247-725-11	s	CARBON 10K 5% 1/4W
R307	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R308	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R309	1-247-132-00	s	CARBON 1.1K 5% 1/4W
	1-247-713-11	s	CARBON 1K 5% 1/4W
	1-247-714-11	s	CARBON 1.2K 5% 1/4W
R310	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R311	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R312	1-249-462-11	s	CARBON 22K 5% 1/4W
R313	1-247-722-11	s	CARBON 5.6K 5% 1/4W
R314	1-247-721-11	s	CARBON 4.7K 5% 1/4W
RV301	1-226-826-00	s	RES, ADJ, METAL 300

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

VR-80 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-479-11	o PRINTED CIRCUIT BOARD, VR-80
ME1001A	1-520-393-00	s METER, AUDIO
ME1001B	1-520-393-00	s METER, AUDIO
ME1002	1-520-440-00	s METER, VIDEO
RV1	1-238-483-11	s RES, VAR, CARBON 5K "AUDIO CH-1 REC"
RV2	1-238-483-11	s RES, VAR, CARBON 5K "AUDIO CH-2 REC"
RV3	1-237-713-11	s RES, VAR, CARBON 100K "TRACKING CONTROL"
RV4	1-238-484-11	s RES, VAR, CARBON 10K "VIDEO LEVEL"
S1021	1-516-961-00	s SWITCH, LEVER SLIDE "AUDIO LIMITER"
S1022	1-516-961-00	s SWITCH, LEVER SLIDE "VIDEO AUTO"

FRAME

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-6709-674-A	s HEAD DRUM ASS'Y, DUH-43B-R
1pc	A-6709-615-A	s UPPER DRUM ASS'Y, DUR-43-R
1pc	▲1-413-069-00	s REGULATOR, SWITCHING UR-01
1pc	▲1-532-742-11	s FUSE 1.6A 125V
2pcs	▲1-532-744-11	s FUSE 2.5A 125V
1pc	▲1-532-745-11	s FUSE 3.15A 125V
CN1001	▲1-560-222-11	s INLET, AC 3P, MALE "AC IN"
CN1002	1-561-577-21	s SOCKET, DIP 8P, MALE "MONITOR TV"
CN1003	1-507-467-00	s JACK, PIN 1P, FEMALE "MONITOR AUDIO"
CN1004	1-562-227-21	s CONNECTOR, BNC, MALE "MONITOR VIDEO"
CN1005	1-562-227-21	s CONNECTOR, BNC, MALE "TIME CODE OUT"
CN1006	1-562-227-21	s CONNECTOR, BNC, MALE "TIME CODE IN"
CN1007	1-562-227-21	s CONNECTOR, BNC, MALE "VIDEO IN 1"
CN1008	1-562-227-21	s CONNECTOR, BNC, MALE "VIDEO IN 2"
CN1009	1-562-227-21	s CONNECTOR, BNC, MALE "SYNC IN"
CN1010	1-562-227-21	s CONNECTOR, BNC, MALE "RF (OFF TAPE)"
CN1011	1-562-227-21	s CONNECTOR, BNC, MALE "VIDEO OUT"
CN1012	1-562-227-21	s CONNECTOR, BNC, MALE "SC IN"
CN1013	1-561-045-00	s CONNECTOR, RF 7P, FEMALE "DUB OUT"
CN1014	1-566-622-11	s CONNECTOR, CIRCLE (R-M) 7P, MALE "DUB IN"
CN1015	1-563-029-21	s CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-1/L"
CN1016	1-563-029-21	s CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-2/R"
CN1017	1-563-030-21	s CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-1/L"
CN1018	1-563-030-21	s CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-2/R"
CN1019	1-507-797-21	s JACK, PHONE, STEREO "MICROPHONES CH-1/CH-2"
CN1020	1-507-854-00	s JACK, PHONE "HEAD PHONES"
H1001	8-825-514-20	s HEAD, CTL PP170-58 "CTL PB"
H1002	8-825-544-20	s HEAD, ERASE EF245-58 "FULL ERASE"
H1003	8-825-578-41	s HEAD, ACE EPS264-5803 "AUDIO/CTL/ERASE"
H1004	8-825-771-31	s HEAD, TIME CODE PP295-58 "TIME CODE"

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(FRAME)

Ref. No. or Q'ty	Part No.	SP Description
M1001	8-835-258-02	s MOTOR, DC BHF-1915B "CAPSTAN"
M1003	1-541-376-11	s MOTOR, DC DNR-4700A "THREADING"
M1005	8-835-179-01	s MOTOR, DC MCB2B15 "CASSETTE COMPARTMENT"
M1006	8-835-178-01	s MOTOR, DC FN30-T26N1E "REEL"
ME1001	1-520-393-00	s METER, AUDIO "AUDIO LEVEL CH-1"
ME1002	1-520-393-00	s METER, AUDIO "AUDIO LEVEL CH-2"
ME1003	1-520-440-00	s METER, VIDEO "VIDEO LEVEL/TRACKING"
PM1001	1-454-415-11	s SOLENOID "TAKE-UP IDLER"
PM1002	1-454-417-41	s SOLENOID "TAKE-UP BRAKE"
PM1004	1-454-415-11	s SOLENOID "SUPPLY IDLER"
PM1005	1-454-417-41	s SOLENOID "SUPPLY BRAKE"
PM1006	1-454-446-11	s SOLENOID "SKEW"
PM1007	1-454-417-41	s SOLENOID "SEARCH"
PM1008	1-454-416-31	s SOLENOID "PINCH"
S1001	△1-570-117-41	s SWITCH, ROCKER "POWER"
	1-561-427-00	s HOUSING, 3P
S1002	1-571-083-21	s SWITCH, SLIDE "75ohm"
	1-215-394-00	s METAL 75 1% 1/6W

16-4. PACKING MATERIAL AND ACCESSORIES

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP Description
1pc	△1-551-812-00	s CORD, POWER
1pc	3-672-720-00	o BAG, PROTECTION
1pc	3-733-669-01	o INDIVIDUAL CARTON
1pc	3-733-670-01	o CUSHION (UPPER)
1pc	3-733-671-01	o CUSHION (LOWER)
1pc	△3-786-852-21	s MANUAL, INSTRUCTION

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

16-5. FIXTURE (OPTION)

OPTIONAL FIXTURE

Part No. SP Description

J-6001-820-A o DRUM ECCENTRICITY GAUGE (3)
J-6001-830-A o DRUM ECCENTRICITY GAUGE (2)
J-6001-840-A o DRUM ECCENTRICITY GAUGE (1)
J-6001-930-A o DRUM ECCENTRICITY GAUGE (4)
J-6009-830-A o FLATNESS PLATE

J-6026-240-A o ADJUSTMENT DRIVER
J-6130-010-A o REEL TABLE HEIGHT CHECK BASE TOOL
J-6130-020-A o REEL TABLE HEIGHT CHECK TOOL
J-6153-020-A o DIHEDRAL ADJUSTMENT DRIVER
J-6150-140-A o ECCENTRICITY SCREWDRIVER 6 MM DIA.

J-6153-580-A o PINCH LEVER ADJUSTMENT TOOL
Y-2031-001-0 o CLEANING FLUID
2-034-697-00 o CLEANING PIECE
3-702-216-01 o BACK TENSION ADJUSTMENT TOOL
7-661-018-01 o SONY OIL

7-732-050-20 o TENSION SCALE (50g full scale)
7-732-050-30 o TENSION SCALE (100g full scale)
7-732-050-40 o TENSION SCALE (200g full scale)
7-732-050-50 o TENSION SCALE (500g full scale)
8-899-999-53 o TORQUE MEASUREMENT TAPE

8-960-015-04 o ALIGNMENT TAPE RR5-3 SA
8-960-015-16 o ALIGNMENT TAPE RR5-4 SB
8-960-037-02 o ALIGNMENT TAPE RR2-1 SD
8-960-037-80 o ALIGNMENT TAPE RR5-1 SD
9-911-053-00 o THICKNESS GAUGE

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

